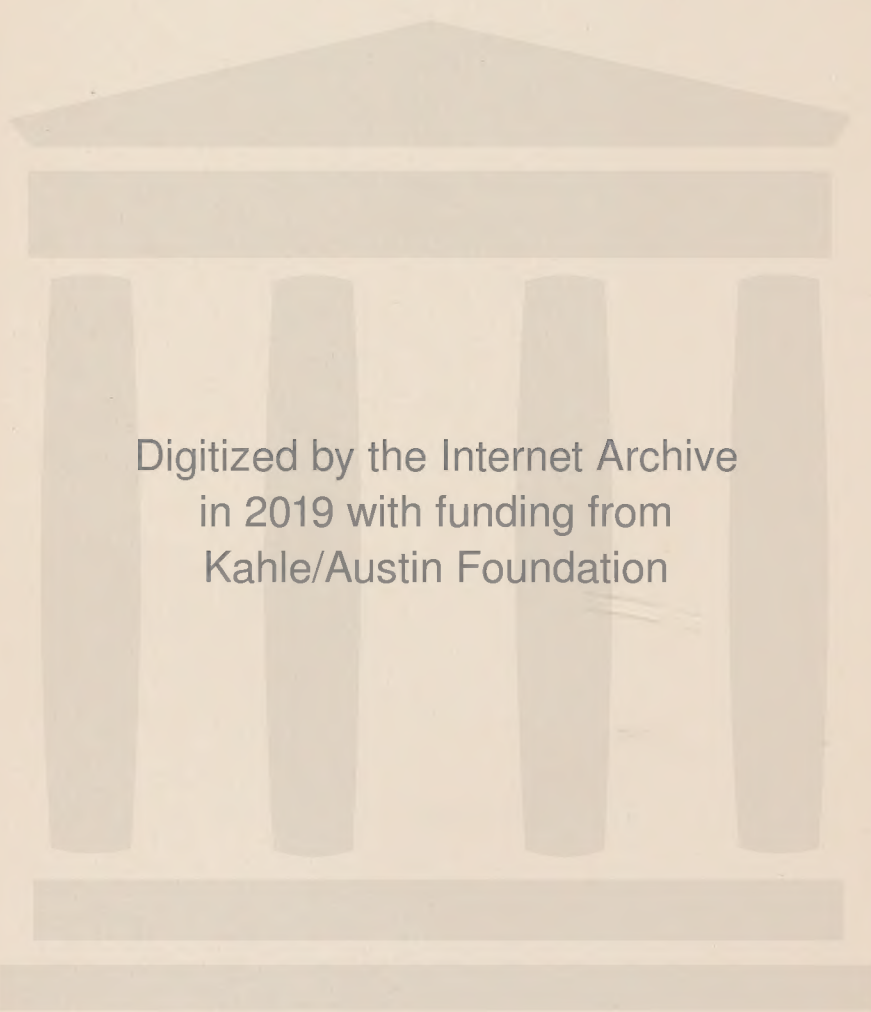


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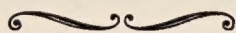
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VOLUME 10

CASES ON MARKETING AIRPLANES

WITH INTRODUCTION AND COMMENTARIES

BY

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AND

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EDITOR'S FOREWORD

The cases in this volume, reporting a variety of marketing problems as revealed by experiences of the aviation industry, represent part of the results of a study conducted by the Harvard Business School under a grant by the Daniel Guggenheim Fund for Research in Commercial Aviation. This grant has made possible a first-hand investigation of numerous marketing problems encountered by an industry with a commercially adolescent product. Although the problems themselves are in no fundamental sense peculiar to the aviation industry, they are in several respects the more significant because of the sharp contrasts which exist between airplanes and most other commercial products.

To each case has been added a signed individual commentary, which states the conclusions of the commentator; for these conclusions the commentators alone assume responsibility. An introductory survey by the commentators also has been included.

In the collection of these cases the School has received generous and broad-visioned cooperation from many executives in the industry. Without their aid the cases included in the present volume, as well as additional cases still in process of preparation, could not have been secured. For many of the cases, permission has been granted by the companies to use their actual names; to the other cases fictitious names have been assigned.

Nearly all the field work in collecting the cases was carried on by Mr. Harwood F. Merrill, a member of the School's research staff. Before the task of case collecting was undertaken, Mr. Herbert Hoover, Jr., then serving on the School's research staff, investigated certain phases of the industry. Mr. Donald L. Wilson, then also a member of the research staff, assisted in the preparation of the case research outline.

For convenience in use, the cases have been arranged in the volume according to the topical sequence appearing on pages ix-xi. In the commentators' judgment, this arrangement reflects a logical order of approach to several major segments of the airplane industry's marketing problem. Thus, cases 1-4

seem to be of value chiefly in bringing out some of the uses to which commercial airplanes have been put; cases 5 and 6 deal with the coverage of markets; cases 7-9 describe several types of airplane distribution. Cases 10-23 present the subject of distribution channels, raising such issues as use or discontinuance of wholesalers, use of automobile dealers for distributing airplanes, channels for the distribution of airplane motors, use of exclusive territories, the requirement of advance-order deposits, and the operation of a used airplane exchange. Cases 24-28 present issues involving prices and terms of sale. Cases 29 and 30 concern sales organization and management, and the last group, cases 31-37, deals with advertising and sales promotion.

It is hoped that this outline may facilitate initial study of the case materials. A much more complete listing of topics, however, is contained in the index, pages 381-385.

CHARLES I. GRAGG.

February, 1931.

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¹ In a minority of the cases, fictitious names have been used for the purpose of disguise.

HARVARD BUSINESS REPORTS

VOLUME 10

HARVARD BUSINESS REPORTS

CASES ON MARKETING AIRPLANES¹

INTRODUCTORY SURVEY

It is the rule rather than the exception for new industries to encounter difficulties in establishing effective marketing policies. Accurately to foresee the extent and requirements of the market so as to adopt sound distribution, price, sales organization, and sales promotion policies often requires much experimentation and research. Even in long-established industries it is by no means unusual to find one or more major marketing problems awaiting solution. Thus the marketing of agricultural products is beset with highly controversial issues. The same is true of textiles, groceries, and building materials. In the younger industries, such as those producing automobiles, radios, and electric refrigerators, unsolved marketing problems are rife.

The cases in this volume show that the aviation industry has met with its full share of marketing perplexities. These cases represent the first results of a research program which was planned to investigate primarily the underlying marketing problems of the industry. When the study was well under way, this industry like most others was subjected to the strains caused by a business depression rapidly deepening in intensity. It was decided, nevertheless, to continue giving principal weight to questions arising from the commercial newness and characteristics of the product rather than to questions growing out of cyclical changes in business conditions.

Even before the business depression made itself felt in the fall of 1929, it was evident that the aviation industry was characterized by excessive production capacity and by widely divergent views among its executives as to the future of its marketing pro-

¹ "Airplane" is used throughout to mean a heavier-than-air, powered flying machine, as contrasted to the lighter-than-air balloon or airship.

gram. These divergencies of opinion were particularly marked in connection with such questions as the extent and nature of the various types of demand for airplanes, the importance of fear as a deterrent to the use of airplanes, and the length of time that must pass before the airplane would be generally accepted as a commonplace means of transportation. The reasons for the lack of reliable answers to these questions are to be found not only in the scarcity of accurate market data commonly experienced by new industries, but also, and to a probably unique degree, in the highly emotional factors which influence the public attitude toward flying.

Historically, the airplane is a newcomer among man's achievements in the conquest of nature. The conventional types now in commercial production embody the results of rapid and extensive technological progress. A quarter of a century ago, airplane flights were measured in seconds of time and yards of distance. Later, minutes and miles were required to record the progress of airplane performances. Now, it is not at all uncommon to hear of uninterrupted flights extending over hours, days, and even weeks, and covering many thousands of miles. The first heavier-than-air machines carried one person with difficulty and uncertainty over a narrowly circumscribed course, and only when weather conditions were judged thoroughly appropriate for the venture. Now, airplanes carrying 20 or more passengers depart regularly for far destinations, and their safe progress through any weather short of violent storm or dense fog can be predicted with a high degree of certainty. Numerous smaller planes can be seen daily, leaving and returning to airports on trips made for the pleasure or profit of their owners. The rigorous uses to which military flying machines are put bear ample witness to the progress which has been made in the art and science of aeronautics.

However, although the airplane itself is a new development, power to leave the earth and to fly independently above it has been a goal which man has dreamed of during countless centuries. Emotionally, the flying machine makes possible the satisfaction of yearnings which are deeply planted in mankind. In the absence thus far of a searching analysis of the attitudes of consumers toward airplanes, it can be said briefly that these attitudes combine elements of exaltation, awe, and fear. Earliest folklore clearly reveals the existence both of the dream of flight and of the awe in which its accomplishment was held. Greek mythology,

for instance, gives us a remarkable picture of human flight achieved by use of man-made wings. Daedalus, architect, sculptor, and inventor, was believed to have constructed wings from feathers and wax to be fitted to himself and his son to enable them to make an escape when all other avenues were closed. The latter, Icarus, flew too near the sun, however; the wax melted from his wings and he fell into the sea; “. . . his pinions scattered o’er the Stream, the Shore his Bones receiv’d, the Waves his Name.”²

This myth alone may be taken as evidence of the antiquity of the desire for human flight, and as indicative of the fear associated with it. The disaster which overtook Icarus was a most exact prophecy of tragedies which have occurred in the past few years, when pilots in flight have lost their supporting wings through structural weaknesses. Despite the disappearance of much of the mystery and risk of flight, it seems inevitable that fear should continue to play a highly important part in the public attitude toward flying machines, and it is common knowledge that this emotional resistance to the use of airplanes is widespread.

There are, however, deeply rooted emotions acting to offset the factor of fear. It is significant that man always has clothed his deities and their lesser representatives, not excluding Cupid, with the power of flight. This phenomenon was widespread among the pagan religions. Rarely have the great Christian artists portrayed angels without wings. Our aspirations are always to rise above others, to reach the “higher levels.” These aspirations may express themselves as desires for sheer speed as well as for adventure, new conquests, and discoveries.

The conscious and sub-conscious realization that these desires are well-nigh universal may suffice to explain the otherwise almost incomprehensible tendency of producers and investors to overestimate the aggregate market for aircraft. This tendency has resulted, initially at least, not only in over-building of manufacturing plants but also in lack of close analysis of marketing problems and requirements. Thus the airplane has been no ordinary new product passing under more or less rational conditions from the stage of invention to those of commercial production and marketing. On the contrary, vast markets seemed ready and waiting to absorb the output of machines which could reasonably well satisfy the deep-planted desire for flight.

² Ovid, *The Art of Love*, J. Tonson, London, MDCCXXXV, p. 79.

Extravagant forecasts of the demand for flight are by no means limited to the last few years. In fact, there has been a striking tendency for such forecasts to be more and more limited by rational qualifications. A few instances of this tendency follow.

"The first balloon ascents, made in 1783, aroused most extraordinary enthusiasm—a regular frenzy of excitement—throughout France, the country in which they took place . . . The sight of a man rising into the air filled the onlookers with the most extravagant ideas and expectations. They thought that the balloon literally opened new worlds to them, that the moon and planets were now accessible: that, just as in the past navigators had explored with their ships untraversed oceans, so balloonists would be able to explore the furthest recesses of space . . . ”³

By 1850, when ballooning had advanced considerably but heavier-than-air craft had not progressed beyond the stages of design and experimental models, a prominent American balloonist declared:⁴

" . . . my whole object has been to bring this much neglected art into a state of progression adequate to its easy acquirement and simplicity for the purpose of dispelling the delusion manifest in so many persons of its intricacy and danger; and thereby bring into the field of aeronautics the genius of our favorably gifted country, which must inevitably place aerial transition as far before railroad and steamboat transition, as the latter are before the old-fashioned sail and horsepower modes, and impart its advantages to the present rising generation."

In 1911, the end of the decade which witnessed the advance of the airplane from the realm of theory and models into man-carrying machines capable of prolonged independent flight, an experienced British pilot reached these conclusions:⁵

"Now that we have not only proved that man can fly, but can fly already with a great deal of reliability, there is absolutely nothing to prevent flight becoming one of the greatest developments in the world's history.

³ Williams, Archibald, "Conquering the Air," Thomas Nelson and Sons, New York, Revised Edition, 1928, pp. x-xi.

⁴ Wise, John, "History and Practice of Aeronautics," Jos. A. Speel, Philadelphia, 1850, p. vii.

⁵ Grahame-White, Claude, *The Aeroplane*, Henry Frowde, Toronto, 1911, pp. 219, 220.

"To the man who contents himself with emphasizing the present limitations of machines, and who asks the blunt question: 'What real use will an aeroplane ever be?' I have a very direct answer in the form of another question: 'Is it not of use to man to be able to move absolutely as the crow flies from point to point, and at a higher speed than would be possible by any existing means of land or sea locomotion?'

"If the aeroplane can, in fact, be placed in the hands of the human race as a machine just as safe as any on land, and yet of a speed impossible save with the air as a medium, then I say that the aeroplane is bound to effect a complete revolution.

"And this aircraft, enormously swift and yet safe to handle, is—I am convinced—bound to come."

By the end of 1928, when public enthusiasm regarding the possibilities of the American aviation industry had reached a high point, it was not unusual to hear those intimately connected with the industry prophesy sales of from 10,000 to 20,000 airplanes during 1929 alone.⁶ These figures were actually much in excess of the number of pilots at that time licensed to fly airplanes.

More cautious and more explicitly qualified is the conclusion reached in 1930 by the advertising department of a publishing company, and stated as follows:⁷

"If through the autogiro or some other principle, it comes about within the next five years that planes when they lose speed will settle to the ground without damage, if they can be taken safely into and out of a four-acre lot and if a person with average mechanical training can in a short time at small expense learn to fly a plane safely and if, furthermore, planes are sold at prices comparable with automobile prices, considering number of passengers and grade of construction, a total within ten years of 250,000 privately owned and operated planes—one to every 100 families—seems to us quite possible. It does not seem to us probable that airplanes will ever be so universally owned as automobiles, but it does seem to us not impossible that if the developments mentioned materialize, within fifteen years there should be 1,000,000 privately owned planes in operation with an annual market of 250,000."

⁶ Cf. Strother, D. H., "The Outlook for Aviation," *Harvard Business Review*, January, 1930, p. 191.

⁷ *The Aviation Industry*, The Curtis Publishing Company, Philadelphia, 1930.

The significance of these opinions is not that to date they have failed to materialize; not that they characteristically look forward to a future more or less distant; but that they recognize, rationally or otherwise, the almost universal fascination which the idea of flight has for the public mind. True, there also have been numerous declarations that flying never will become a part of human activity, that the airplane has but a very small commercial future, and so on.

These gloomier views serve at least one useful purpose: they focus attention on the existence of a major merchandising problem to which the aviation industry must continue to give its best efforts. Briefly, the problem is how to make an economically operated flying machine which, having raised its passengers off the ground, can be relied on to bring them down again safely under practically any conditions.

The modern airplane differs in no fundamental principle from the earliest machines capable of independent flight. These early airplanes, as flown after 1903 by the Wrights in the United States and abroad, by Santos Dumont, Henry Farman, and Louis Bleriot in France, and by other pioneers, depended on attaining a great enough forward speed to create beneath the wings the air pressure required to sustain controllable flight.⁸

Despite the technological progress made in airplane design and construction during the last generation, no truly fundamental change in the principles of flight has as yet been embodied in the airplanes sold to civilian markets.⁹ The advances have been

⁸ The first heavier-than-air vehicle actually to lift passengers into the air probably was Hiram Maxim's steam-driven device which performed the feat in England in 1894. This was not a free flight, however, as the machine was restrained by a system of rails from rising more than a few inches. The first really independent flight by airplane apparently was completed by Clement Ader in France in 1896, when he is reported to have flown in his machine some 300 metres. In the same year Professor Langley, an American pioneer in the science of aeronautics, caused his steam-powered model to fly nearly a mile.

⁹ In the final report on the Daniel Guggenheim Safe Aircraft Competition, held in the fall of 1929 with the announced object "to achieve a real advance in the safety of flying through improvement in the aerodynamic characteristics of heavier-than-air craft, without sacrificing the good, practical qualities of the present-day aircraft," it was stated in part that "The fundamental idea of the Fund throughout this Competition is: 'What we want in aviation is progress.' Tangible results are before you today. There is nothing *revolutionary* [italics ours] about the winner, but there are a number of evolutionary ideas transplanted from the design board to the air in a flying competition . . . The seed planted by this Competition will bear fruit for the next decade." *Final Report, The Daniel Guggenheim Fund for the Promotion of Aeronautics, Inc., New York, January 30, 1930, pp. 7, 9.*

evolutionary rather than revolutionary. Reduction of weight of plane and motor in relation to load-capacity; assurance of unfailing motor performance; strengthening of body and landing-gear; enhancement of controllability and stability in flight; decrease of landing speed and of space required for take-off and landing: these and many other objectives have been sought and in large measure found by engineering research and the rapidly growing science of aerodynamics.

Nevertheless, an airplane still requires a relatively long, straight runway for taking flight; it must maintain a high speed in order to keep aloft; it can land only after a relatively gradual horizontal descent and at such speed as to call for a high degree of piloting skill and for a large, fairly smooth landing surface. As was true of the earliest flying machines, sudden stoppage of the propelling power still subjects an airplane and its passengers to serious risks. The following data for three types of airplanes offered by different manufacturers, illustrate fairly typical performance characteristics of airplanes offered in 1930 to civilian buyers:

	2-Place Open Biplane	6-Place Cabin Monoplane	17-Place Monoplane
Rated Horsepower.....	100	300	1,260
High Speed (miles per hour).....	106	140	152
Cruising Speed (miles per hour).....	90	110	122
Landing Speed (miles per hour).....	50	55	70
Stall Speed.....	46	50	64
Take-off (in feet).....	...	275
Rate of Climb (feet per minute from sea level).....	730	1,000	1,500

As reported by the United States Department of Commerce, the causes of accidents in civil aeronautics for the period from January to June, 1930, may be classified as follows:¹⁰

¹⁰ Aeronautics Branch, United States Department of Commerce, *Air Commerce Bulletin*, November 15, 1930, pp. 252-253.

In addition to investigating all accidents, the Aeronautics Branch, created under the Air Commerce Act of 1926, undertakes in various ways to promote aviation by inspection and licensing of aircraft; examination and licensing of pilots; establishment and enforcement of air traffic rules and regulations; promotion of landing fields and other aids to air navigation; publication of many data on aviation activities; and so on. Cf. *The Aircraft Year Book for 1930*, Aeronautical Chamber of Commerce of America, Inc., pp. 195-202.

Total Causes of Accidents.....		100.00 %
Pilot Errors.....	55.83 %	
Other Personnel.....	1.31	
	<hr/>	
Total Personnel.....		57.14
Matériel		
Power plant failure.....	15.02	
Airplane (other than motor).....	8.78	
	<hr/>	
Total Matériel.....		23.80
Miscellaneous, Undetermined and Doubtful.....		19.06

Merchandising Problems

Adaptation of a product to meet the expectations and needs of users is a merchandising function; its successful performance requires the joint effort of engineering and market research. In view of the high proportion of airplane accidents caused by faults in piloting, it is clear that a major merchandising problem of the aviation industry is to seek to discover and incorporate into the airplane some revolutionary change in design which will reduce the number of accidents caused by personnel failures, counteract the ever-present fear of flying, and enlarge the airplane's sphere of practical usefulness.

Attempts to bring about revolutionary changes in flying-machine design have been by no means lacking. Perhaps the near future will witness radical departures in airplane construction which will multiply many times over the uses to which heavier-than-air flying machines can be put safely and economically. The science of aerodynamics is scarcely half a century old.¹¹ The task of collecting, verifying, and interpreting the basic data on heavier-than-air flight performance has gone forward rapidly, and within the past decade much experimentation has been devoted to the possibilities of vertical flight promised by machines of the helicopter type.

Notably, the autogiro has been brought to a point of development which makes its adoption for commercial production a question receiving much attention by the aviation industry. The autogiro differs in principle from the customary airplane in that it derives its lift primarily from a set of blades which revolve horizontally to the ground, and may be likened to a propeller arranged to pull upward rather than forward. These blades

¹¹ "Langley Memoir on Mechanical Flight," *Smithsonian Contributions to Knowledge*, Vol. 27, No. 3, 1911, esp. p. 2.

move independently of the motor, which actuates a propeller for moving the craft forward in the usual manner. The autogiro is said to rise at a sharp angle after a short run, to sustain itself in flight at very low speeds, and to be able to effect a stable vertical descent with dead motor more slowly than a man descends in a parachute.¹²

It is not proposed here to forecast the extent to which airplane manufacturers may find it desirable commercially to produce autogiros under the license agreements offered by the developers of this innovation. Indeed, quite different types of approach to the problem of making aircraft safer and more flexible in flight may perhaps supply the eventual answer to this aspect of the industry's merchandising problem.

The effect of the evolutionary improvements already effected in airplane and motor design and in the variety and effectiveness of auxiliary equipment has been to make airplanes more nearly fool-proof, more comfortable, and more flexible in use. For instance, among the many devices which have added new elements of safety to airplane operations are: landing gear equipped with shock absorbers and over-size "soft" tires; wing slots and flaps to minimize the risk of stalls and spins; direction-finding radio instruments; highly sensitive altimeters; and gyroscopic stabilizers. Refinements in interiors have made many airplanes luxuriously comfortable. Advances in motor design, in stream-lining, and in types of fuel have decreased the energy required to carry a given weight through the air.

These and similar improvements have contributed much to the reliability and marketability of the airplane.¹³ Thus in the first 6 months of 1930, as compared with the corresponding period of 1928, whereas total miles flown in civil aeronautics increased from 16,484,612 to 68,669,928, or almost 4.2 times, the number of fatal accidents increased from 97 to 150, or less than 1.6 times, and the miles flown per fatal accident increased from 169,944 to 457,800, or about 2.7 times.¹⁴

In no event, however, does it seem probable that changes and improvements in airplane construction and navigation devices can

¹² *The Autogiro*, by the Pitcairn-Cierva Autogiro Company of America, Philadelphia, 1930.

¹³ Cf. Guggenheim, Harry F., "Aviation—Progress in Safety," *Harvard Business Review*, October, 1929, pp. 37-43.

¹⁴ *Air Commerce Bulletin*, November 15, 1930, p. 255.

wholly eliminate the factor of human fallibility. Accidents traceable to this cause occur in the operation of all kinds of machinery, as evidenced, for instance, by automobile and factory statistics. Facilities for providing thorough flying instruction and examination, therefore, are likely to be a permanent adjunct of the aviation industry.

Other merchandising problems involve the question of what types of flying machine should be manufactured to supply the different market sub-divisions. This question, for instance, involves the relative merits of seaplanes, amphibians, and flying boats, as contrasted with the airplane designed solely for land-base operations. Another question relates to the potential demand for very light, small airplanes, and for motorless gliders.

Growth of the Marketing System

When the aircraft industry emerged from its preliminary experimental period in 1914, there were 16 establishments in the United States manufacturing complete aircraft, with an average of 168 employees each and an aggregate annual production valued, at final selling prices, at a little more than \$1,000,000. During the war period which followed, the number of establishments doubled and the value of products at selling prices increased to an aggregate of approximately \$20,000,000 in 1919.¹⁵ The period from 1919 through 1925 was one of little or no increase in value of output. During those years the principal market for aircraft was the Government; nearly all the Government demand was for military airplanes and airplane motors. By 1928, however, when the reported production of airplanes in the United States was 4,761, those produced for civilian use exceeded the military types in the proportion of nearly 3 to 1. In 1929, for the reported output of 6,034 planes this ratio was about 8 to 1.¹⁶

Sales to the Government were made almost wholly by the officers of the manufacturing companies. The method of sale was to make a formal bid and to submit one or a few planes or

¹⁵ United States Department of Commerce, *Biennial Census of Manufactures*, 1925, p. 1,085.

¹⁶ Despite the obvious military importance of the aviation industry, the Federal Government has refrained from subsidizing airplane and airplane motor manufacturers. Many of these manufacturers, however, apparently continue to rely in part on government orders, especially orders for highly expensive developmental models.

motors to be tested. After exhaustive tests, during which the manufacturing company often had to make substantial changes in design and construction, the planes or motors were finally accepted or rejected. Under these circumstances, the function of selling was naturally subordinated to the technical manufacturing task of meeting the rigid specifications of the Government. So great, in fact, was the emphasis on design, construction, and materials, that attention to sales policies and sales organization was almost non-existent. There was little spontaneous demand for aircraft from civil sources and practically nothing was done to develop such a demand.

On the other hand, technical improvements followed each other in rapid succession. Planes and motors, through the process of rigorous testing and engineering study, were brought to a relatively high state of safety, dependability, and economy of operation. Substantially all types of planes and motors were involved in this developmental process; these types ranged from single-motored, one-, two- and three-passenger, open-cockpit planes for pursuit and combat purposes up to large bombing and transport planes. Thus the military specifications of the Government afforded essential experience in developing planes of the type which subsequently were to tap the largest strata of demand for planes for civil use.

This period of technical development and Government purchase was a fortunate one in that it brought the products of the industry to a stage of reliability which was essential if the wider civil markets were to be cultivated. The disadvantage of the period was that it failed to provide the industry with basic market knowledge and experience.

Early Stimulation of Civilian Demand

The letting of air-mail contracts by the Government, commencing in 1926, provided one of the first powerful stimulants of civilian demand for planes.¹⁷ The policy of the Government was to let these contracts to private operators instead of creating a government-owned or operated system of air-mail lines; this policy encouraged the purchase and use of airplanes by individuals and business firms on a profit-seeking basis, although use of

¹⁷ Cf. Jome, Hiram L., "Commercial Air Transport," *Harvard Business Review*, January, 1928, pp. 198-217.

airplanes for profit-making purposes had been spreading slowly during the post-war period through the more or less sporadic activities of "barn stormers," commercial photographers, air-taxi services, and crop-dusting operators. The main stages in the development of civil demand, however, started only in the period after 1925. The existence of air-mail service, the long-distance flights of Lindbergh and others in 1927, the spreading knowledge of Europe's well-developed passenger service, all served to stimulate widespread public interest in aviation and to lay the groundwork for commercial marketing of planes on a substantial scale.

The years 1926 and 1927 saw many manufacturers of aircraft and aircraft motors preparing to supplement their sales to the Government with sales to civil buyers. In 1928, considerable expansion both in physical plants and in plans for supplying civil demand was common in the industry, and during 1929 the productive capacity reached a point substantially in excess of the requirements of the market. Until about the middle of 1929, it seemed that the spontaneous increase in civil demand for airplanes was sufficient to care for the constantly growing output. This demand came from air-transport companies, which had increased rapidly in number with the granting of air-mail contracts, and from operators of flying schools, persons offering air-taxi service, persons using airplanes in other profit-making ways, individual owners, and business firms. Slackening of general business activity and satiation of the spontaneous demand for airplanes led to curtailment of airplane production and sales in the latter part of 1929 and in 1930.

During the period of rapid expansion of civil markets, airplane manufacturers patterned their marketing methods closely on the methods used in the automobile industry. Aside from sales to the Government, the marketing procedure of airplane and airplane-motor manufacturers in general was as summarized below:

1. Motor manufacturers sold their products to airplane manufacturers for installation in new planes.
2. Airplane manufacturers sold completed planes, equipped with motors, to wholesale distributors at a discount between 15% and 25% off retail list price.
3. The distributor resold to retail dealers whom he selected and to whom he allowed a discount of between 10% and 15% off retail list price.

4. The airplane manufacturers also sold directly to large users, usually transport lines buying planes in fleets.

5. Advertising was confined typically to magazines devoted primarily to aviation interests, which had come into existence during the preceding few years.

It became increasingly evident during the latter part of 1929 that the broad policies indicated above were not working satisfactorily. Perhaps the most significant symptom of the failure of this marketing system was that the distributors and dealers typically were unable to make a profit from the handling of airplanes and consequently were expected by the manufacturers to eke out their incomes by means of auxiliary activities. These auxiliary activities included the sale of accessories, the operation of flying schools, and the performance of taxi, charter, and photographic services.

The marked excess of capacity for production in relation to demand and the unprofitableness of the distributing system indicated that one or more of the underlying marketing problems of the industry had not been adequately solved. These problems may be stated as follows:

What are the markets for aircraft?

What channels of distribution will best reach the potential customers?

How expansible is the market?

What types of sales organization and sales promotion will prove most effective?

*The Markets for Airplanes and Motors*¹⁸

The airplane is a means of transportation and as such must be classed for comparative purposes with other means of transportation. In such a classification it is apparent that the aviation industry is not large as yet. The value of aircraft produced in 1925 was about 0.2% of the value of all transportation equipment produced in that year.¹⁹ Motor vehicles accounted for nearly 60% of the total 1925 output of the transportation industries; railroad equipment accounted for about 6%; and the remainder was divided among other types of land-transport vehicles and ships and boats. Although the output of the aviation industry

¹⁸ See cases on "Some Uses of Airplanes," pp. 25-53.

¹⁹ United States Department of Commerce, *Biennial Census of Manufactures*, 1925, p. 1,084.

has increased substantially since 1925, it is doubtful if, at the average retail price of between \$5,000 and \$7,500, the total value of the less than 15,000 airplanes now in civilian use is as much as 1% of the total value of all transportation vehicles.²⁰

So far as the manufacturers of airplane motors are concerned, the immediate civil market is well defined. The motor manufacturer sells his product to the maker of airplanes. Inasmuch as the life of motors is shorter than the life of planes, some consideration has been given to the proposal that the motor manufacturer sell replacement motors through his own distributing system to users. However, even if this were done, the market for motors would be clearly defined, since a motor is of use only in connection with a plane.

Several factors have combined to dissuade airplane manufacturers from making their own motors. Briefly, these factors are: the relatively large plant and equipment required; the long period of costly experimentation needed to bring each model to a point of satisfactory operation; the large output necessary to assure economical production of motors; the fact that a few engine manufacturers already had attained eminence when the period of substantial civil demand began; and the consequent ready supply of motors suited to all types of airplanes.

Airplane motors are able to maintain their identity in the minds of airplane purchasers even after assembly into the finished planes. Many airplane manufacturers allow buyers to specify the particular make of motor to be put in a plane. These factors of separate identity and optional selection by the buyer combine to make it possible for motor manufacturers to exert far more influence on ultimate users than is usually true in the case of producers of fabricating parts. Although it is by no means certain that this disjunction of plane and motor in the mind of the buyer will continue permanently, it seems likely to do so in the near future at least. Until an important degree of unification of plane and motor takes place, manufacturers of motors can be expected to adopt strong marketing policies aimed at establishing

²⁰ In 1929, there were 7,843 licensed civilian airplanes, and 4,520 identified, a total of 12,363. Retail prices ranged widely, from \$3,000 or \$4,000 for small open planes, to \$30,000, \$40,000, and more for large multi-motored transport planes. For 1928, the average price of civilian airplanes was around \$7,500. For 1929, the average was somewhat higher. In 1930, numerous price reductions, as well as the introduction of new small models retailing at from \$1,000 to \$3,000, brought the year's average price to a substantially lower figure, perhaps around \$4,500.

the several makes of motors firmly in the minds of ultimate purchasers as well as of the industry itself.

The potential market for civilian airplanes themselves is more difficult of definition. It is possible, however, to divide actual and potential purchasers of planes into two main classes: those who buy for their own use, and those who buy in order to be able to sell airplane services. These two classes in turn can be subdivided as follows:

A. Purchasers who sell airplane services:

1. Transport lines
2. Flying school, taxi service, etc.
3. Commercial photographers, crop-dusting firms, etc.

B. Purchasers for own use:

1. Pleasure and sport
 - (a) Individuals
 - (b) Flying clubs
2. Business use
 - (a) Executive and personnel transportation
 - (b) Sales promotion and advertising
 - (c) Carriage of goods
3. Non-military uses by Federal and local governments
 - (a) Police duties
 - (b) Fire patrols, etc.

In line with the main market divisions indicated above, the general public can be divided into two groups: those who are potential purchasers of planes; and those who, while not potential purchasers of planes, are potential users of plane services. The airplane manufacturers' market among persons selling plane services depends, it thus will be seen, upon the demand aroused among potential users of the services.

If the airplane is to grow substantially in use it must be able to demonstrate definite superiorities over other modes of transportation. This calls for an open-minded consideration, on the part of those who are interested in determining the probable expansibility of the market, of the relative advantages and disadvantages of aircraft, both from the point of view of present and expected future performance and from the point of view of consumer attitude. The airplane of today is relatively expensive to own or to use; the costs of learning to fly are high; airports and

flying fields are, in most instances, not convenient of access; the schedules of transport lines often are suited to the convenience of the operator rather than to that of the patron and, even so, are not always regularly maintained; and the risk to life seems relatively high. There apparently is, furthermore, a widespread feeling on the part of consumers that the airplane, while an excellent mode of transportation, is for the use of the "other fellow." Many of these disadvantages no doubt can be overcome or minimized, but the industry cannot afford to permit sales optimism to lead it to overlook their existence.

Within the industry there seems to be a sharp division of opinion as to whether the chief future demand for planes is to come from persons selling plane services, persons buying for pleasure or sport, or persons buying planes for business use.

*Channels of Distribution*²¹

Evidences of dissatisfaction with the distributor-dealer system are found in the fact that some airplane manufacturers have discontinued use of distributors altogether in order to sell directly to retail dealers, while other manufacturers have given much attention to the possibility of selling through automobile distributors and dealers. In general the development of the distributor-dealer system has been haphazard and based upon too little analysis of the financial requirements and merchandising capabilities needed to sell airplanes effectively. The dealers and distributors customarily have been chosen for the primary reason that they already were engaged in some form of flight activity, such as operating flying schools, selling air-taxi and photographic services, or engaging in stunt and exhibition flying. The distributors were expected to contract for a minimum number of planes for a year and to deposit with the manufacturer a substantial sum for each plane ordered as an evidence of good faith. With such an agreement a distributor naturally undertook to secure a sufficient number of local dealers to take the planes contracted for off his hands. Thus, the manufacturers have given primary attention to effecting sales to distributors, and the distributors in turn have endeavored to pass their commitments on to dealers. The distributors and dealers both have been

²¹ See cases on "Coverage of Markets for Airplanes," pp. 54-70; "Types of Airplane Distribution," pp. 71-84; and "Distribution Channels," pp. 85-246.

chiefly concerned with operations other than the sale of planes and have given scant attention to developing competent sales organizations and sales methods. Throughout the system, the characteristic attitude toward the sales of planes has been one of passivity.

If distributors and dealers are to be used, it is important that they be able to make a profit from the sale of planes. Otherwise they cannot be expected to devote much attention to that activity. This means that strict limitations must be placed upon the number of distributors and dealers used. It also means that steps should be taken to determine the operating expenses and profits of distributors and dealers. At present there apparently exists an almost complete lack of knowledge concerning this point. Without specific and classified accounting information on distributors' and dealers' operating results, manufacturers are severely handicapped in formulating distribution policies, setting prices and discounts, and aiding their sales outlets to improve their effectiveness.

It is probable that many more distributors and dealers have been appointed than the present aggregate volume of sales in the industry can support. Manufacturers usually have not attempted to confine their outlets to the sale of their own makes of airplane but have merely sought to prevent the outlets from handling directly competing makes. The numerous mergers which have taken place in the industry have had some effect in restricting the number of distributors and dealers and possibly will exert an even greater effect in this direction in the future.

In addition to the question as to how many distributing firms the industry can support, there is the problem of adjusting discount schedules to meet the normal requirements of those firms. Unfortunately, reliable data on distribution costs are not available for the aviation industry, but it must be inferred that discounts commonly used in the past, with a maximum of 25% off retail list prices, have not provided a sufficient incentive. For instance, a retailer of low-price automobiles, with sales of \$680,000 in 1929, reported a gross margin, after mark-downs and trade-in allowances, of 21.85% of net sales and a net profit of only 0.28%. Even with allowance for the much higher unit price of an airplane, it is difficult to see how an airplane retailer, facing an undeveloped market and a correspondingly high sales expense, could hope to operate

profitably on discounts providing initial mark-ups of not over 25%, and in many instances, of only 15%.

*Price in Relation to Expansibility of the Market*²²

The industry will be benefited by whatever price reductions can be made consistently with sound production and sales policies and fair profits to manufacturers, distributors, and operators.

In view, however, of the inherent obstacles to air travel, it is obvious that price reductions can have but a limited effect on the market.²³ Take, for example, the potential market among individuals who might buy planes for their personal use. To persons who never have flown, the air appears somewhat like the ocean to the person who for the first time contemplates

²² See cases on "Prices and Terms of Sale," pp. 247-287.

²³ As to the effects of price reductions on airplane sales during 1930, a year of marked general depression in business, Mr. H. F. Merrill has furnished the following analysis, based on published data for production and sales as indicated by licenses for planes: "By February, 1930, it became apparent that a definite trend toward lower list prices was developing; and by the end of the summer, 19 of the 34 important manufacturers of airplanes had reduced prices on their entire lines, and 4 others had reduced prices on at least one model in their lines. Reductions on individual models ranged from 1% to 43.2%, and on entire lines from 3.5% to 43.2%, with the median on models located at 18%, and that on entire lines at 19%.

"The 19 airplane manufacturers who announced price reductions on their entire lines after January, 1930, had produced 1,866 of the 4,186 airplanes licensed from April to December, 1929, or 44.6% of the total; from January to September, 1930, this group of manufacturers produced 812 of the 1,789 planes licensed, or 45.4% of the total. It is clear, therefore, that those manufacturers who reduced prices have not dominated the market to an important extent as a result of the policy.

"Furthermore, there is a lack of consistency in the results of price reductions. For example, 6 manufacturers have increased their participation in the market by 100% or more in 1930; of these, 3 have reduced their prices by more than the median reduction, 1 by less, and 2 have maintained prices at the 1929 level. Ten manufacturers have had their participation in the market in 1930 reduced by 50% or more; of these, 2 manufacturers have reduced their prices by more than the median reduction, 2 by an amount approximately equal to the median reduction, 3 by less than the median, while 2 have maintained the 1929 price level, and the action of the tenth is not known. Of the total of 19 manufacturers who have reduced prices on their entire lines, 9 increased their participation in the market and 10 met with a decrease. Of the 13 manufacturers who did not reduce their prices, 6 increased their participation in the market, and 7 met with a decrease.

"The result of the price war of 1930 in increasing airplane sales has been negligible. It is likely, however, that it has had negative effects—effects which are not at all to the ultimate advantage of the industry. First, and most important, it has reduced margins without any compensating contribution; reduction of margins has resulted either in lower profits or in the necessity of curtailing expenses, or, in many cases, both. This has resulted or must ultimately result in lower appropriations for sales promotion, such as advertising, dealer helps, and salaries for the salesforce. In the second place, the price war has focused attention on a destructive rather than on a constructive phase of marketing effort."

trying to swim; probably the air seems even more dangerous, because less tangible. There is many a person who would not undertake to learn to fly an airplane even if one were given to him free. Among the positive causes of refusal to purchase or use an airplane, fear of accident must be given primary importance and should be made the subject of thorough, candid study by all firms engaged in the promotion of aircraft use. How to appraise the risks in the light of observed facts, how to reduce these risks, and how to impart to prospective customers a fair, impartial statement of the risks of flight, are questions to which the industry must provide adequate answers.

Even aside from considerations of strangeness and fear, there are many factors that tend to discourage the individual from flying and that cause mere price reductions to have little significance to him. Learning to fly, for instance, not only is expensive but calls for certain physical qualifications. Good general health, accurate senses of sight and touch, together with ability to gauge distances, to keep a sense of balance, and to use good judgment coolly, are necessary assets of the competent pilot. While securing a Federal or state pilot's license is not a prerequisite to the purchase of an airplane, a course of instruction is necessary. Possession of a Federal license, highly desirable in any case, is required for interstate flight.²⁴

In addition to the problem of learning to fly, the prospective purchaser has to decide where he would keep the machine, where he would be likely to fly with it, and how often he could use it. He finds that it is customary for owners to keep planes at established airports or flying fields, where storage space may be rented in a hangar for a charge averaging perhaps \$35 per month. This charge includes the service of moving the plane into and out of the hangar. As to where he will fly in his plane, the prospective buyer finds that while emergency landings are sometimes made at non-prepared fields, these landings are often risky, because of such factors as roughness of terrain, presence of electric wires, trees, buildings, and so on.

It is almost essential, therefore, in planning trips, that the plane owner decide to make his objective some other landing field about which information is available currently. This limitation on terminating the trip robs the plane of much of the advantage of

²⁴ See Curtiss-Wright Sales Corporation, esp. pp. 93-95.

speed and freedom from traffic congestion, for the flyer usually finds that the landing field is not conveniently located for either social or business calls. For short trips, consequently, the airplane turns out not to afford any marked advantages in the average case; for long trips, the owner must familiarize himself with the peculiarities not only of the objective landing field, but also, as a precautionary measure, with the location and nature of the emergency fields along the route. Finally, in connection with frequency of use, the airplane prospect is likely to remember that night flying at present calls for a high order of skill, that rain, fog, snow, and clouds are limiting factors, and that the occasions for taking trips long enough to warrant the use of the plane are perhaps of sporadic occurrence.

So far as other means of travel are concerned, moreover, it is uncertain whether the airplane's cost of operation, including interest and depreciation, can be reduced to a directly competitive point.

These considerations are mentioned, not as conclusive or permanent reasons against the purchase of an airplane, but to substantiate the belief that as yet price changes are not likely in themselves to prove effective in stimulating demand. Active and intelligent selling programs designed to offset the factors, other than price, which obstruct the growth of demand are to be preferred to price emphasis. Unwise price reduction would serve merely to deprive the industry of income needed for developmental work in market expansion.

It seems evident that a reasonably correct answer to the question of market expansibility must await thorough research. Of the various hypotheses which might be tested, the following are examples applying to individuals economically able to purchase airplanes. Individuals in this group would purchase airplanes:

1. If ownership and operating costs were lowered substantially;
2. If safety of flight were assured;
3. If ease of flight were demonstrated conclusively;
4. If convenience of airplane use were demonstrated to be greater than that of automobiles or other vehicles.

This list of hypotheses, though patently incomplete, suggests the nature of the questions which must be answered for each of the market divisions.

*Sales Organization*²⁵

Aircraft manufacturers, distributors, and dealers have a number of problems in common as regards salesforce management, especially in connection with the classification of the market for airplanes. Need a separate force of sales executives and salesmen be organized to reach each of the different types of market? Probably transport lines and fleet operators can best be reached by manufacturing companies; those companies can organize separate departments to care for such sales or can rely upon an unsegregated organization. But when it comes to the markets composed of business firms and of individual buyers respectively, the case for segregation of salesforce becomes more apparent. In general, one market must be approached with rational sales arguments and the other with emotional arguments. The salesman who can sell airplanes to individuals for their own use may be unfitted to sell to business firms. Regardless of whether the same or separate salesforces are used, it is essential that the sales organization recognize the differences in the two markets and in the sales appeals that will influence them. A salesman need not, perhaps, be a pilot, but he surely must understand the workings of the planes he is to sell, and especially must he know the reasons why people will purchase his product. Technical knowledge alone, however, does not equip a salesman for the task of inducing people to purchase airplanes.

*Advertising and Sales Promotion*²⁶

To formulate a sound advertising program without adequate market data is impossible, and it was to be expected that motor and plane manufacturers and distributors would find it so. Most advertising of aviation products has appeared in the numerous trade and other journals devoted exclusively to aviation interests and has been selective in appeal. However, some aviation advertising has appeared in more widely circulated periodicals, and much of this advertising has been designed to create a primary demand for flight rather than merely to encourage the selection of a particular make of plane or motor. Naturally enough, there is wide divergence of opinion in the industry as to whether

²⁵ See cases on "Sales Organization and Management," pp. 288-301.

²⁶ See cases on "Advertising and Sales Promotion," pp. 302-377.

airplanes are even yet suitable for general advertising, and whether the results of such advertising are worth the cost.

Thus far, firms in the aviation industry appear to have relied primarily upon the appeals of speed and novelty for stimulating demand for airplanes. While the most effective appeals cannot be selected until more is known concerning the attitude of potential customers, it would seem that if the airplane is to capitalize its strong emotional drawing-power and to compete successfully with other transport vehicles, more effort should be made to point out the specific advantages of the airplane and to answer the probable objections of consumers.

C. I. G.
M. P. M.

January, 1931

I. SOME USES OF AIRPLANES

I. POWER OIL COMPANY¹

REFINER AND DISTRIBUTOR—OIL AND GASOLINE

SALES PROMOTION—*Purchase of Airplane by Oil Company.* An oil refining and distributing company had developed a brand of high-grade aviation gasoline and lubricating oil which it sold to filling stations at airports throughout one state. The company had purchased an airplane, which, under the general control of the sales department, had been used extensively to demonstrate to city officials by actual test flights the safety and practicability of modern aviation equipment, a program initiated by the company for stimulating the development of municipal airports throughout the state. After the company had been operating its airplane less than a year the advertising manager suggested that the company purchase an additional plane.

(1930)

Early in 1930 the advertising manager of the Power Oil Company suggested to the vice president in charge of sales that he recommend the purchase of an additional airplane by the company. If the vice president favored such a purchase, the matter would come before the board of directors for final approval.

The Power Oil Company sold oil and gasoline suited both for industrial use and for automotive and aviation consumption. It operated tank cars, bulk stations, and service stations in one of the largest and most populous eastern states. In addition to having its own extensive chain of automobile filling stations, the company sold to numerous independent filling stations. It had developed and branded its high-grade aviation gasoline and lubricating oil when air mail service first was established through the state. These new products it sold to filling stations located at airports. Total annual sales exceeded \$40,000,000, and the company's financial position was strong.

It had been the company's policy to restrict its marketing activities to the state in which it was chartered and no deviation from this policy was anticipated. Although the company occupied

¹ Fictitious name.

a leading position in the state, it planned to strengthen that position in every way consistent with sound business practice. Extensive newspaper, bill-board, and service station advertising programs were carried on.

As one means of maintaining its leadership the company had purchased a five-passenger cabin monoplane late in the spring of 1929. This monoplane, of well known make and powered by a single motor produced by an outstanding manufacturer in the aviation industry, had been selected because of its reputation for safety and comfort in flight; its original cost was nearly \$14,000. The plane had been placed under the general control of the sales department. The company employed an experienced pilot, who held a transport pilot's license. Hangar space was rented at the municipal airport outside the city in which the company's main office was located. This airport provided full facilities for the servicing and repair of the plane and its motor. On the plane the company's trade name was featured prominently.

In purchasing the airplane, the Power Oil Company had in mind the probable extensive growth of airplane usage. The plane had been made available for the transportation of any company executive or director, but it was not the company's practice to transport customers or salesmen. The company had many district sales offices located throughout the state, and each salesman was assigned to a limited territory. Within these sales territories it was more convenient and economical for salesmen to travel by automobile or train than by airplane. The plane was used somewhat, however, for carrying sales executives from one part of the state to another. In general, the company had found that as far as its executives were concerned, the plane could be used most effectively for short emergency trips. For routine travel it had proved less satisfactory.

One executive in particular had occasion to visit the sales offices of the company. Ordinarily he visited each of the four main territorial offices two or three times a month. To reach any of these offices by train from the company's central office required about five hours and necessitated changing trains one or more times. By using the airplane, this executive could reach any of the branch offices in less than two hours' actual flying time. About thirty minutes more had to be allowed for transportation to and from the landing fields.

This executive had been requested by the company to use the airplane on his trips. He had not always been able to do so, however. In some instances the airplane had been in use for other purposes on days when he required it, and in other instances unfavorable flying conditions had made it necessary to use automobile or railroad transportation. During the late fall of 1929, weather conditions had become increasingly unfavorable for flying purposes. In December there were only sixteen days when flight was possible. This was the worst month in the experience of the company and was in sharp contrast to June to September, in which weather conditions had been nearly perfect for flying.

The chief use of the plane, however, was in connection with the development of airports. The Power Oil Company recognized that widespread use of airplanes was in substantial measure dependent upon the existence of numerous safe landing fields. After the purchase of its airplane, therefore, the company initiated a program for stimulating the development of airports by the cities and towns in the state. At the beginning of 1929, there were about 40 airports in the state. These included the more highly developed ports approved as regular fields by the United States Department of Commerce, and also a larger number of emergency flying fields.

The company had taken the initiative in negotiating with the municipal governments of all important cities and towns within the state which might be induced to provide airports of some type. In each case, the company sent one letter or more to the mayor, city manager, town council, or chamber of commerce, whichever seemed most appropriate in view of local conditions. The letters suggested that the need of a local airport should be given careful consideration. In connection with these letters the company offered to send its airplane free of charge to the city or town and to demonstrate to the local authorities by means of actual test flights the safety and practicability of modern aviation equipment.

During the summer and early fall of 1929, the company's airplane was scheduled almost constantly for visits and demonstrations of this type. Typically, after initial arrangements had been completed the plane was flown to the city or town, landing in some field selected in advance as being the most convenient and suitable for the purpose. The municipal officials concerned were taken

by motor to the field, where the plane was displayed and examined under the guidance of the pilot. An official of the Power Oil Company was also present to discuss the subject of aviation and the desirability of a local airport, and usually the company was able to secure the attendance of an important state official part of whose duty was to aid in promoting aviation interests in the state. Subsequently, the municipal officials and their families were taken for short trips. The company gave strict instructions to its pilot that he was to fly the plane in the most conservative and safe manner possible; there had been no mishaps of any kind to the company's plane.

The company also had been careful not to compete in any way with local flying services or other fixed base operators. In pursuance of this policy, it had refused to carry any passengers for hire. It had sought, on the other hand, to cooperate with local flying agencies and customarily had invited them to be present at the demonstration flights arranged for municipal officials.

During the year 1929, the number of airports in the state increased to about 120. Of the new airports the company was confident that about 50 had resulted directly from its efforts. In filling the scheduled appearances of the plane, the company had been fortunate in that poor weather conditions had caused less than half a dozen cancellations.

At the end of 1929, the following report was drawn up on the company's flying operations.

REPORT ON 1929 FLYING OPERATIONS

Number of aircraft operated one (total)

Lighter-than-air craft: _____

Heavier-than-air craft: one

Total number of hours flown 290

Average speed of aircraft 100 miles an hour

Percentage of total hours flown

On company business not directly connected with aviation 42%

For advertising and promotion purposes 58%

For private use of company officials and families _____

Number of passengers carried 1,000

Number of pilots employed one

Base pay: \$500.00 per month

Mileage pay: _____

Original cost of aircraft	<u>\$13,800.00</u>
Estimated depreciation in 1929	<u>\$2,208.36 (6 mo.)</u>
Cost of upkeep and repairs	<u>\$771.05 (6 mo.)</u>
Cost of fuel and oil	<u>\$1,043.27 (6 mo.)</u>
Estimated cost of operation per year, per aircraft	<u>\$20,000.00</u>
Estimated cost of operation per mile, per aircraft	<u>\$.345</u>
Estimated cost of operation per passenger mile	<u>\$1.725</u>

The company's brand of aviation gasoline and motor oil had become well established in the state. For the year 1929, the company estimated that its sales of those products were nearly 80% of all aviation gasoline and oil sales made in the state. Whenever a new airport was being developed, the company sought aggressively to have its aviation gasoline and oil distributed at that port. The managers of airports, either municipally owned or privately owned, usually granted only one permit to sell gas and oil at any one port. These permits were sought by managers of automobile service stations and by others. At the earliest possible moment, the Power Oil Company endeavored to contract with the successful bidders for the sale of its aviation gasoline and oil. As one means of securing these contracts, the company offered to lease to the dealers, at a purely nominal figure, the storage and delivery equipment that they needed for their stations. This equipment varied in cost from \$600 to \$2,500, according to the estimated volume of sales. The Power Oil Company had been successful in contracting with the dealers at nearly all the airports in the state, and in about 75% of its contracts the dealers had agreed not to handle other brands of aviation gasoline and oil.

By the end of 1929, aviation products represented less than 1% of the Power Oil Company's total annual sales, but the company was convinced that this phase of its business would continue to grow. To assure adequate coverage of the aviation market, the company had appointed a manager of aviation sales as one of the assistants to the general sales manager. Under the manager of aviation sales were a small number of salesmen who confined their activities to the sale of aviation products.

At least three important competitors of the Power Oil Company were operating airplanes, each of them having a fleet of from two to five planes. The three competitors, unlike the Power Oil Company, conducted extensive interstate operations, so that their executive had long distances to cover. The Power Oil

Company was uncertain, however, whether the main purpose of its competitors in using planes was to secure economy in executives' time or to gain sales promotional advantages. At least one plane belonging to a competitor was operating in the state almost daily, and the Power Oil Company foresaw increasingly keen competition in the sale of aviation fuels.

In suggesting the purchase of an additional airplane, the advertising manager of the Power Oil Company did not have in mind any new uses to which the plane should be put. He was uncertain, furthermore, whether the company should plan to use both planes, or should sell the used plane, though it was still in completely satisfactory condition. No statistical study had been made of the uses of the plane by executives, and no specific correlation had been made of plane usage and sales response, but the letters received from individuals, business firms, and municipal officials who had taken part in the airport activities of the company had been highly gratifying.

In January, 1930, the question of purchasing an additional plane had not been placed before the board of directors.

COMMENTARY: This case cites the use of an airplane by an industrial company for sales promotion purposes. How important this market might become and how it best could be exploited, were marketing questions calling for analysis by vendors of aircraft. Two inferences regarding these questions are suggested by the case. The first is that purchase of an airplane by a business firm is likely to be regarded as a capital expenditure of enough importance to require the approval of boards of directors or chief executives. Sales efforts, therefore, should not fail to provide for suitable approach to those persons. And in the second place, business firms whose products are directly or indirectly related to the aviation industry are likely to be among the best initial prospects in the business firm market.²

The Power Oil Company, a producer of operating supplies for airplanes, was attempting to increase its own sales by increasing the use of airplanes for which such supplies were required. The sales promotion program was wisely planned to facilitate and encourage the development of aviation by bringing about an increase in the number of flying fields; the method adopted was the highly commendable one of going directly to those persons in position to act favorably in behalf of aviation in order to convince them of the safety and pleasure of flying

² For business use of an airplane under other circumstances, see case of the R. H. Baker Company, Incorporated, p. 32.

by actually getting them into the air. In a vast majority of instances, conversion of an individual's attitude from one of passivity or resistance toward flying into one of acceptance or enthusiasm can be accomplished only by means of actual flight. Not only did the Power Oil Company take up the municipal officers and local business men directly responsible for establishing the local airports, but it also recognized the strategic position of family and friends in influencing a man's attitude toward aviation.

The Power Oil Company's insistence upon conservatism in the flight operations of its airplane was essential to the purpose at hand. Stunt and daredevil aerial acrobatics would have been out of place; the important task in the development of aviation was to secure its wide acceptance as a commonplace means of transportation. The campaign of the Power Oil Company was designed to hasten such acceptance. While the presence of flying fields is not in itself a factor likely to cause the purchase of airplanes, it does remove serious obstacles to their purchase.

As to whether the ownership of one or more airplanes would prove worth while to the Power Oil Company from a dollars-and-cents point of view, it would be futile to argue here. As yet, sales of aircraft gasoline and oil were a very small part of the company's total sales. Methods of measuring the results of the company's airplane operations had not been devised, and such measurement would be extremely difficult because of the intangible factors involved, such as the indirect effects of the company's aviation activities upon other parts of its business. Use of aircraft oil, for instance, might become common among automobile owners. On the expense side, moreover, the company's airplane operations had not been carried on over a sufficiently long period to yield reliable cost data, and changes in airplane design might make these data obsolete at any time.

A question might be raised as to whether the flying field developments recommended by the Power Oil Company would be a sound investment for the municipalities or other owners. The company obviously should have satisfied itself as to the validity of its recommendations before making them.

April, 1930

C. I. G.

2. R. H. BAKER COMPANY, INCORPORATED

CONTRACTOR—STEAM POWER PLANTS AND INDUSTRIAL PIPING

TRANSPORTATION EQUIPMENT—*Purchase of Airplanes for Executive and Sales-force Transportation.* A company whose chief business was the installation of steam power plants and industrial piping on contract, and whose subsidiaries sold various industrial supplies and services, decided in 1929 to purchase an airplane for the use of executives in visiting important contract jobs at distant localities, and for the use of salesmen in reaching outlying customers. The airplane purchased performed these tasks to the company's satisfaction, and also was used in important emergencies.

(1929)

In February, 1929, the president of the R. H. Baker Company, Incorporated, decided that his company could make use of an airplane. Accordingly, he notified the salesman of a local airplane distributor of his interest and finally purchased a 3-place cabin monoplane powered with a 90 horsepower engine. In June, 1930, an executive of the company stated that the company's experience with the airplane as a means of business transportation had been highly satisfactory.

The R. H. Baker Company, Incorporated, one of the largest contractors for steam power plant and industrial piping in the United States, maintained a main office in Cambridge, Massachusetts, with branch offices in New York and Detroit. The company's customers were public officials and the executives of public utility and manufacturing companies throughout the United States. All the officials of the company, including the president, the vice president in charge of construction, the treasurer, and the clerk of the corporation, carried on sales activities in addition to their other duties, and one executive, the vice president in charge of sales, devoted his full time to this. The headquarters of the vice president in charge of sales were in New York City, and this executive spent most of his time there. Under him was an engineer who devoted his entire time to traveling throughout the United States, seeking to obtain contracts. The

value of the average contract obtained by the R. H. Baker Company, Incorporated, was approximately \$200,000, while the range was from a few thousand dollars to \$800,000.

The Baker Supply Company, a wholly owned subsidiary of the R. H. Baker Company, Incorporated, sold plumbing and heating supplies, pipe, valves, fittings, and mill supplies at wholesale to plumbing and heating, power piping, manufacturing, and public utility companies, and to municipal, state, and federal governments. The customers of the Baker Supply Company were principally in New England, and were concentrated in Massachusetts, although sales were made also in New York and New Jersey. Seven salesmen, under a sales manager, covered this territory. The salesmen operated in exclusive territories, divided in such a way that each salesman had approximately 250 prospective purchasers and 100 customers; customers were visited once a week. The average order received was approximately \$50, although many of the larger customers placed orders for \$1,500 or more.

Financially affiliated with the R. H. Baker Company, Incorporated, was the Lewis Welding Company, which took contracts for acetylene and electric welding and cutting, and manufactured such wrought iron products as andirons, tables, plant stands, and pipe hangers. Contractors, manufacturers, public utilities, and municipal, state, and federal governments throughout the United States were customers of this company, and in addition it sold such products as andirons and plant stands directly to art and department stores in New England. The company employed four salesmen, who visited retail customers once a month and made frequent calls upon prospective customers for the company's contract work and industrial products. Those salesmen also kept in touch with all building projects in which the Lewis Welding Company might take part and submitted estimates or bids for them. Orders received varied between a few dollars and several thousand dollars.

The original 3-place cabin monoplane purchased by the R. H. Baker Company, Incorporated, subsequently had been traded in for one of the same make equipped with a more powerful motor, and this second plane, in turn, had been traded in August, 1929, for a similar plane equipped with an extra gasoline tank to increase its radius of operation.

The company had employed an experienced pilot and given him complete charge of the plane. He was held responsible for keeping it in flying condition, and he alone was authorized to fly it. The pilot was appointed a salesman of the Baker Supply Company and the Lewis Welding Company, and he also could transact business for the R. H. Baker Company, Incorporated. He usually made a trip to outlying territories every two weeks to call on customers and prospective customers. In addition, the pilot-salesman made deliveries on rush orders. The other salesmen of the company made use of the pilot and plane occasionally, but usually the pilot-salesman, himself, attended to such sales and deliveries as necessitated the use of the plane.

The president, the vice president in charge of construction, and the vice president in charge of sales of the R. H. Baker Company, Incorporated, alone had authority to authorize the use of the airplane for the business of any of the three companies. All three companies were placed upon an equal basis in requisitioning its use; if two of the companies applied at the same time, its use was granted to that one whose need was most pressing.

In June, 1930, an executive of the R. H. Baker Company, Incorporated, stated that the purchase of the plane had been a highly satisfactory investment, and that its continued use in the conduct of the business of the three companies was assured. Only two people in the organization had objected to flying in it; both of these gave as their reason the fact that they were not "air-minded." From April, 1929, to June, 1930, 278 hours and 45 minutes of flying time had been devoted to the business of the three companies. The cost of operation of the planes, based on 240 hours of flying time, was as follows:

Depreciation, $1\frac{1}{3}$ years.....	\$3,850
Gasoline, oil, grease, etc.....	780
Hangar rent.....	418
Repairs, maintenance, etc.....	990
Pilot hire (allocation of salesman's salary)	2,576
Total cost.....	<u>\$8,614</u>
Total number of flying hours.....	240
Cost per flying hour.....	\$ 35.89

Depreciation included both that on the plane and that on the engine, and was taken on an expected life of three years. Airplane expense was charged to the traveling, sales promotion, or construction activities of the company using the plane, according to

the object of the trip, and such charges were based on the number of flying hours during which the plane was in use. The company had kept no record of direct savings in traveling or other expenses resulting from the use of the plane, but the executives were of the opinion that the cost of railroad or automobile travel for similar purposes would have exceeded the cost of using the plane. In addition, savings had been effected in the time consumed in travel, which had a direct effect on expenditures for hotel rooms, meals, and incidentals. A further economy had resulted from a large reduction in the unproductive traveling time of executives. Practically no difficulty had been experienced from bad weather conditions, and no important trip by plane had been cancelled for this reason.

An executive of the R. H. Baker Company, Incorporated, cited four examples in which the airplane had been valuable in the conduct of the business of the three companies. In one instance, the R. H. Baker Company, Incorporated, had undertaken a large construction project at Wassaic, N. Y., which was approximately 26 miles from Poughkeepsie. The only means of reaching Wassaic from Cambridge by surface transportation was by train to New York City; by train from New York to Poughkeepsie; and thence by automobile to Wassaic. The president of the R. H. Baker Company, Incorporated, desired to visit Wassaic every two weeks in order to give his personal attention to the project. Because of inconvenient train schedules, a day's visit in Wassaic, going by surface transportation, would have necessitated an absence of two and a half days from Cambridge. By plane, however, the president was able to leave Cambridge at nine in the morning, arrive at Wassaic at eleven, spend the afternoon supervising the work, and arrive back in Cambridge at seven in the evening.

In another case, the R. H. Baker Company, Incorporated, was preparing a bid in its Cambridge office for a contract proposal which was to be opened at Detroit at a certain time. Under railroad schedules, it would have been impossible to complete the estimates and get them to Detroit in time. By use of the plane, however, the company's bid arrived in time for the opening, and the company was awarded the contract.

In another instance, the Baker Supply Company had planned to maintain an exhibit at the National Gas Convention at Atlantic

City. A few hours prior to the opening of the exhibit, the Baker Supply Company was awarded the exclusive distributor's franchise in New England for a patented pipe fitting, and it was highly desirable that the product be shown at the exhibit. By ordinary means of transportation, the necessary materials could not have been transported to Atlantic City in time; the airplane, however, carried the necessary 500 pounds of pipe fittings to the convention in time for its opening.

In another case, a special valve installation in the plant of a public utility company near Boston burst one morning, and it was highly important that it be replaced in order that the company could meet the demands of its customers during the evening. Neither the Baker Supply Company nor any of its local competitors had spare valves of the type required in stock; the nearest point at which one could be obtained was New York City. The Baker Supply Company requisitioned the services of the company airplane, a trip to New York was made to obtain the valve, and it was installed before nightfall. As a direct result of this service, the public utility company increased its volume of business with the R. H. Baker Company, Incorporated, by more than 100%.

COMMENTARY: This case, like that of the Power Oil Company,¹ provides at least a partial answer to the question: "Under what conditions, and for what purposes, can a business firm make economical use of an airplane?" A reasonably complete answer to this question is nowhere available as yet, unfortunately for those aircraft firms which desire to strengthen their marketing plans.

In the present instance, the president of the company first decided that his enterprise should own an airplane and then notified an airplane distributor of his decision. Not many business firms, however, can be expected to take the initiative in like manner; vendors of airplanes, consequently, have the two-fold task of determining what types of business firms can fairly be expected to have use for airplanes, and of offering aircraft to such firms on the basis of rationally demonstrable advantages.

The uses which the R. H. Baker Company, Incorporated, had made of its airplanes were of three main classes:

1. Executive's supervisory visits to distant construction jobs in process, the visits being periodic during the period of the construction.

¹ See p. 25.

2. Regularly scheduled salesman's trips, the pilot acting as salesman in visiting outlying market areas.

3. Emergency delivery of merchandise and important papers.

The company obviously could not rely fully on its plane for emergency deliveries, since the plane also was being used for other purposes. To maintain a plane solely for the infrequent emergencies that might occur, however, would have been uneconomical. When an emergency did arise, a plane could be chartered if necessary.

As to the other two classes of use of the company's airplane, there are not sufficient data available to justify an attempt to relate costs of operation to results secured. Such factors as time, convenience, personal satisfaction, and effect upon the customer are all of importance, and these factors are not readily reduced to mathematical computation. Doubt must be expressed, however, as to whether under existing conditions, an airplane used *solely* for salesmen's visits to customers could be shown to be economical except in industries where, as was true of the R. H. Baker Company, Incorporated, individual orders from customers are unusually large.

In regard to the operating costs reported in the case, attention should be called to the fact that interest was not included among the airplane's expenses, and also to the fact that depreciation was by far the most important element. Depreciation seems to have been adequate; for airplanes of the designs available to the company, three years probably was not an unreasonably long period of usefulness. As designs of aircraft and aircraft engines reach a point of greater stability, depreciation charges can be reduced, and total operating costs will thereby be substantially lessened.

August, 1930

C. I. G.

3. COLONIAL AIR TRANSPORT, INCORPORATED

AIR TRANSPORT COMPANY

PRICING—*Revision of Air Express Rates.* A company operating air mail, passenger, and express services between New York and Boston inaugurated an air express service over its passenger line, under which any package weighing five pounds or less was carried at a flat rate of \$5, and collections and deliveries were made by messengers of a telegraph company for a fixed charge per package. The unsatisfactory initial volume of express was attributed to the high flat rate and lack of insurance. When the telegraph company proposed a lower schedule with rates varying according to weight, the operating company accepted the proposal, and also made provision for insurance.

(1929)

During the summer of 1929, Colonial Air Transport, Incorporated, had inaugurated an air express service over its passenger line between New York and Boston. Any package weighing five pounds or less was carried at a flat rate of \$5; collections and deliveries of packages were made by the messengers of the Western Union Telegraph Company, which charged Colonial Air Transport, Incorporated, \$2 a package for this service. During the first few months of operation of the service, the volume of express carried had been unsatisfactory, and executives of Colonial Air Transport, Incorporated, became convinced that, among other objections, the rates were too high. When, in December, 1929, the Western Union Telegraph Company proposed to reduce the rates for its messenger service, Colonial Air Transport, Incorporated, considered revising the rate for air express in an attempt to obtain a larger volume of traffic.

Colonial Air Transport, Incorporated, an operating subsidiary of the Colonial Airways Corporation, operated air mail, passenger, and express services between New York and Boston. The company had established the air mail line, which included a stop at Hartford, Connecticut, in 1926 upon securing a government contract. Originally, express, under a contract with the American Railway Express, and passengers had been carried on the mail

line, but because of the unsatisfactory volume of express traffic Colonial Air Transport, Incorporated, had later discontinued the express service. When in April, 1929, the company established a non-stop passenger service in tri-motored planes between New York and Boston, the transportation of passengers over the mail line was also discontinued.

The schedules of Colonial Air Transport, Incorporated, in December, 1929, were as follows:

Summer Schedule

Air Mail

Daily except Sundays and National Holidays

Eastern Standard Time

Miles			
0	5:00 A.M. Leave	Newark Airport	Arrive 9:15 P.M.
	6:35 A.M. Leave	Hartford, Conn.	Arrive 7:35 P.M.
220	7:50 A.M. Arrive	Boston, Mass.	Leave 6:15 P.M.

The closing hour for mail is one hour before flying time at general post offices at Boston and Hartford, two hours before flying time at New York City.

Passenger

Daily

Eastern Standard Time

Miles				
0	11:45 A.M.	5:00 P.M. Leave	Newark Airport	Arrive 1:20 P.M. 6:30 P.M.
210	1:30 P.M.	6:45 P.M. Arrive	Boston, Mass.	Leave 11:20 A.M. 4:35 P.M.

Note: Bus leaves Hotel Pennsylvania, New York, at 11:00 A.M. and 4:15 P.M. Bus leaves Hotel Statler, Boston, at 10:45 A.M. and 4:00 P.M.

Winter Schedule

Air Mail

Daily except Sundays and National Holidays

Eastern Standard Time

5:00 A.M. Leave	Newark Airport	Arrive 8:40 P.M.
6:35 A.M. Leave	Hartford, Conn.	Arrive 7:30 P.M.
7:50 A.M. Arrive	Boston, Mass.	Leave 6:15 P.M.

Passenger

Daily

Eastern Standard Time

11:45 A.M.	4:00 P.M. Leave	Newark Airport	Arrive 1:20 P.M. 6:00 P.M.
1:30 P.M.	5:45 P.M. Arrive	Boston, Mass.	Leave 11:20 A.M. 4:00 P.M.

Note: Bus leaves Hotel Pennsylvania, New York, at 11:00 A.M. and 3:15 P.M. Bus leaves Hotel Statler, Boston, at 10:45 A.M. and 3:25 P.M.

Bus connections were maintained by Colonial Air Transport, Incorporated. The elapsed time between downtown points in New York and Boston was approximately three hours. Since the inception of these services, approximately 85% of the scheduled trips had been completed.

The initial passenger fares were \$34.85 one way, and \$64.60 for a round trip. Late in 1929, the fares were reduced to \$27.88 one way, and \$52.97 for the round trip. Fares included bus transportation to and from the airports. The rate on five-hour trains between New York and Boston was \$10.96, including Pullman chair and extra fare charges. During 1929, the planes used in passenger service had operated with average loads substantially less than capacity, and the expenses of carrying on the operations had not been covered. The company had been unable to discover any trend in the number of passengers carried beyond the fact that the number carried had fallen off substantially with the arrival of winter.

Shortly after the inauguration of the non-stop passenger line, executives of Colonial Air Transport, Incorporated, had conceived the plan of reestablishing an air express service between Boston and New York. The air express service formerly operated in conjunction with mail service under the contract with the American Railway Express, had been unsatisfactory, principally, it was thought, because the rates were too high in relation to those charged for similar shipments by other means of transportation; in fact, the cost of sending a shipment between New York and Boston by air mail was less than that by air express. Air express traffic had failed to materialize, and the contract had been allowed to lapse.

Executives of Colonial Air Transport, Incorporated, were convinced, however, that there existed a definite demand for an express service between New York and Boston that would assure delivery on the day of shipment. Shipments by railroad express had to be made before the start of the business day in order to obtain one-day service, and even then it was obtained only under ideal conditions. The fastest mail trains between New York and Boston operated on five-hour schedules and the elapsed time between collection and delivery of first-class mail was from seven to eight hours, even with the use of special delivery stamps. Special deliveries, moreover, often were not made until after the close of the business day. Parcel post service between the two cities usually was slower than first-class mail service, although deliveries often could be obtained on the day of mailing by using a special delivery stamp.

The rate on railroad express shipments on high classification merchandise between New York and Boston varied from 36 cents per pound to \$1.85 per 100 pounds, depending upon the size of the shipment; the American Railway Express accepted liability of \$50 without an extra charge, and the shipper had recourse to law for recovery. Higher liabilities were accepted only on payment of a correspondingly higher rate. On parcel post shipments, the rate was 7 cents for the first pound and 1 cent a pound for each additional pound, with insurance charges extra.

By forwarding shipments over the passenger planes of its line from New York to Boston, Colonial Air Transport, Incorporated, could assure arrival on the day of shipment; even shipments forwarded on the noon plane could be delivered in Boston before the close of business.

Executives of Colonial Air Transport, Incorporated, believed that the traffic which could be attracted by air express was merchandise of high value and of relatively light weight. Such merchandise would include flowers, candy, clothes, hats, jewelry, gifts of all sorts, and replacement parts for industrial machinery. It was expected that nearly all air express shipments would be of an emergency nature.

In order to assure one-day service, it was necessary to provide facilities for the collection and delivery of merchandise. Colonial Air Transport, Incorporated, maintained passenger bus services between the downtown sections of New York and Boston and the airports. These buses could accommodate express shipments easily, but other facilities had to be provided for the collection and delivery of packages beyond the bus terminals. The Western Union Telegraph Company had agreed to furnish messengers for a fixed charge of \$2 a package for any size of package up to 5 pounds.

In determining the rates to be charged for this air express service, Colonial Air Transport, Incorporated, had decided that cost, except for the fixed charge made by the Western Union Telegraph Company, need not be considered. Such shipments, unless in excessive quantities, could be made with no increase in operating cost and with no increase in the capacity of the planes, since each plane could carry 450 pounds of express without affecting its passenger carrying capacity in any way. The rates

consequently were based entirely on what it was judged the traffic would bear.

In first considering this problem, executives of Colonial Air Transport, Incorporated, had concluded that a flat rate of \$5 for any package weighing 5 pounds or less would be low enough to encourage the use of air express service. Of this sum, the Western Union Telegraph Company would receive \$2, and Colonial Air Transport, Incorporated, would retain \$3. The rate and the weight limitation appeared to have other advantages as well. The company believed that in most cases the shipper and the messengers would be able to judge whether or not a package exceeded the limit; by using a flat rate, therefore, weighing would be unnecessary. The rate was easy to remember, and it was believed that all shipments of the character expected would fall within a 5-pound classification.

In making use of this service, the shipper telephoned a Western Union office, and a messenger called for the package immediately. The package and \$5 were given to the messenger, but no receipt was given to the sender for either; if the package exceeded 5 pounds in weight the messenger refused to accept it. The package was shipped on the next plane and was delivered, by messenger, direct to the addressee immediately upon arrival. The time between collection and delivery rarely exceeded four hours, and was usually less.

At the inception of the service, announcement advertisements were inserted in leading newspapers in New York and Boston, and leaflets were mailed or delivered to firms in both cities. Because of the novel character of the enterprise, nearly all Boston and New York newspapers carried news stories describing the service. Advertising of the air express service was continued in conjunction with the company's advertising of its passenger service, which appeared frequently in small space newspaper insertions.

During the first few months that the air express service was in operation, the expected volume of traffic had failed to materialize. The average weight of the packages sent was less than 8 ounces, but no attempt had been made to classify the merchandise.

Executives of Colonial Air Transport, Incorporated, attributed the lack of interest in air express principally to the high rate and

the hesitancy of shippers to send valuable merchandise by air express. Since Western Union messengers did not give receipts to the shipper, it was difficult, if not impossible, to obtain insurance coverage on articles of high value during transit. Colonial Air Transport, Incorporated, limited its liability to \$50 per package. As a result, the shipper of merchandise exceeding the value of \$50 risked financial loss, and if shipments were valued at \$50 or less, the shipper was forced to pay at least 10% of their value for transportation. Another difficulty was general resentment because of the flat rate. Since the average air express package had weighed less than 8 ounces, a majority of the shippers had believed themselves overcharged.

Executives of Colonial Air Transport, Incorporated, were convinced that abandonment of the flat rate, a reduction in the rate level, and the use of receipts when insurance coverage was desired by shippers would eliminate the difficulties to a large extent. The company was unable to make these changes, however, without a new agreement with the Western Union Telegraph Company.

In December, 1929, the Western Union Telegraph Company proposed the following rate schedule for the air express service between New York and Boston:

Weight of Package	Rate per Package	Rate per Pound	Western Union Telegraph Company Receives	% of Total Charge	Colonial Air Transport, Incorporated, Receives	% of Total Charge	Estimated Average Weight of Package	Colonial Air Transport, Incorporated, Receives per Average Pound
1 pound	\$1.25	\$1.25	\$.75	60	\$.50	40	½ pound	\$1.00
2 pounds	2.00	1.00	1.00	50	1.00	50	1 "	1.00
5 "	3.00	.60	1.25	42	1.75	58	2.5 pounds	.70
10 "	4.00	.40	1.65	41	2.35	59	7.5 "	.31
15 "	5.00	.333	2.00	40	3.00	60	12.5 "	.24

The Western Union Telegraph Company also proposed to have its messengers provide facilities for weighing shipments sent by air express. These proposals were accepted by Colonial Air Transport, Incorporated, and the new rate schedule was put into effect early in 1930. Colonial Air Transport, Incorporated, continued to limit its liability to \$50, but an agreement was made with an insurance company whereby the shipper could purchase insurance

at the rate of 25 cents per \$100, with a maximum total of \$25,000 insurance on the merchandise carried on one plane at one time. The shipper purchased insurance from the messenger; when the shipment was placed on board the plane, a policy was filled out and sent to the shipper, who received it a day or so later. The package, of course, was covered by insurance immediately upon payment of the premium to the messenger.

COMMENTARY: This case presents the following issues:

- (1) Whether it was advisable for Colonial Air Transport, Incorporated, to offer air express service.
- (2) Whether a downward revision of rates for air express was needed.
- (3) Whether the use of a flat rate was sound.

At the time of this case, it was desirable to augment the income from passenger carrying service by engaging in such types of business as involved little or no addition to overhead or direct operating expense. From this standpoint, the combination of passenger and express service was preferable to the combination of mail and express service.

It is clear that the demand for air express service was primarily for shipments of an emergency nature. Therefore, it was essential to guarantee delivery on the day of shipment. This meant that provision had to be made for the prompt collection and delivery of air express shipments. Until the volume of air express traffic grew to sufficient proportions to justify the provision of independent facilities for collection and delivery, such an arrangement as was entered into with the Western Union Telegraph Company was necessary to the successful functioning of the air express service.

After the inauguration of air express service by Colonial Air Transport, Incorporated, in conjunction with passenger carrying operations, the unsatisfactory volume of air express traffic presumably was ascribable to a combination of some of the following causes:

- (1) Fear of loss of merchandise through accident.
- (2) Limited insurance coverage.
- (3) Lack of receipts.
- (4) Deterring effect of high rates.
- (5) Objections to flat rate.
- (6) Unfamiliarity with the service on the part of business firms and others.

Presumably much of the merchandise to be shipped by air express was of relatively high value. Consequently it is probable that a combination of the first three factors mentioned above was one obstacle

to the development of a larger volume of traffic. As regards the other causes, resentment at the flat rate probably was at least as important as the highness of the rate. Because the upper limit was five pounds, shippers were likely to reason that it was unfair to charge the same rate for packages weighing less than one pound. Since passenger rates were at this time undergoing a downward revision, however, there presumably was some expectation on the part of shippers that air express rates also would be lowered. Nor can the possibility be overlooked that there had been insufficient promotional efforts to familiarize the public with air express service.

It appears, therefore, that Colonial Air Transport, Incorporated, followed a sound policy in deciding to establish a new rate schedule in December, 1929, in arranging for additional insurance, and in providing for receipts to be given to shippers who insured their merchandise. It does not appear, however, that the schedule of rates which the company adopted had any particularly logical basis. So far as concerned the functions performed by Colonial Air Transport, Incorporated, the cost of the service was not an important factor in setting rates, since the additional load capacity of the company's passenger planes presented a joint cost situation. On the other hand, express rates of rail carriers were only partly a competitive factor because of the slower service afforded. Parcel post rates, however, were a possible competitive factor because deliveries on the day of mailing sometimes could be obtained by the use of special delivery stamps. Because of the fact that a certain volume of express shipments could be carried by Colonial Air Transport, Incorporated, in its passenger planes at little or no additional cost, it was to the advantage of the company to have its express service facilities utilized as fully and as regularly as possible. At the same time it would not have been to the company's advantage to establish rates at such a point as to produce a larger volume of express traffic than the company was in a position to handle as a by-product of its passenger carrying service. These considerations suggest that Colonial Air Transport, Incorporated, should have established a schedule of rates lower than that which it put in force in December, 1929, but not so low as to meet regular express and parcel post rates on a competitive basis.

Because of the conditions under which packages were collected, it was not feasible to establish either a straight or a sliding scale rate per ounce or per pound. It may be pointed out, however, that the rate schedule adopted was so arranged as to cause a variation in the return to the company from \$108 up to \$900 for a full 450 pound load according to the different weights of packages comprised in the load. Such a wide variation in return was not desirable.

Without presuming to say precisely how rates should have been established, it may be pointed out that the company would have been in a much better position to make its changes in express rates intelligently if it had carefully analyzed and classified the merchandise offered for air express shipment during the preceding period.

June, 1930

M. P. M.

4. PRATT & WHITNEY AIRCRAFT COMPANY (A)¹

MANUFACTURER—AIRCRAFT ENGINES

MERCHANDISING—*Extension of Line of Products.* A manufacturer of two aircraft engines of large horsepower classes was asked by several airplane manufacturers and transport line operators to manufacture also a 300 horsepower motor of the same type as its other motors. Transport companies, the chief users of planes equipped with the company's engines, by using 300 horsepower motors in some types of planes could effect economies in operating costs and investment charges. Finding that manufacture of a lighter motor was unlikely to involve new designing, manufacturing, or servicing problems, the company decided to add a 300 horsepower engine to its line of products, although by so doing it would enter a highly competitive field.

(1929)

The Pratt & Whitney Aircraft Company manufactured aircraft engines of the fixed radial air-cooled type. One of the company's models, known as the Wasp, was of 420 horsepower, and the other, known as the Hornet, was of 525 horsepower. During 1927 and 1928 several airplane manufacturers and transport line operators had suggested that the company also should manufacture a 300 horsepower motor of the same type as its Wasp and Hornet motors. In 1929, the company undertook to determine the desirability of adopting this suggestion.

The Pratt & Whitney Aircraft Company was the largest manufacturer of high powered air-cooled aircraft engines in the world. Executives of the company believed that Wasp and Hornet engines were superior in quality and performance to any others in their horsepower classes, and the company's competitive position was strong. In the United States in 1929, 90% of the air transport lines were using at least one Pratt & Whitney engine and 60% of all airplanes used in scheduled transport operations were reported to be equipped with Wasp or Hornet motors. Over 90% of the Pratt & Whitney engines used in civil air operations were used for such transport planes. The company also

¹ See also Pratt & Whitney Aircraft Company (B) and (C), pp. 201 and 225.

sold large numbers of engines to the United States and foreign governments for military and naval purposes.

The Pratt & Whitney Aircraft Company had confined itself to the manufacture of engines of large horsepower classes in the belief that the future of aviation lay in regular transport operations, for which high powered planes were required, rather than in the individual ownership of planes for pleasure or business use. The company's sales and service organization and policies had been formulated primarily to serve the needs of transport lines; little attention had been paid to the needs of private owners of planes, whether individuals or business organizations using planes for the transportation of executives and salesmen.

For several years prior to 1929, the Pratt & Whitney Aircraft Company had observed a tendency on the part of airplane manufacturers to increase the horsepower of the engines used in their planes relative to the carrying capacity of the planes. The object of this increase appeared to be greater speed in flight. Wasp and Hornet engines were of sufficient horsepower amply to meet the demands occasioned by this tendency in large planes. There were, however, various makes of single-motored planes of a size and carrying capacity insufficient to justify the use of a 420 or 525 horsepower motor, and the company consequently could not supply this market. Further, engines of less than 400 horsepower also were used widely and increasingly in multi-motored planes carrying 10 to 14 passengers. Many operators were becoming convinced that 10 to 14 passenger tri-motored planes equipped entirely with motors of high horsepower were overpowered for ordinary commercial needs. In some instances, three 300 horsepower engines were used, in others two 300 horsepower engines and one of higher horsepower. By using relatively light engines, transport operators could effect economies in operating costs and investment charges which apparently more than offset the resulting relatively slight impairment of performance.²

² An example of this tendency is given in the following statement, which appeared in *Airway Age*, January, 1930:

NEW FORD ANNOUNCED

"A NEW tri-motored, all metal transport airplane to be known as the 7-AT type is announced by the Ford Motor Company. In appearance the new ship will be virtually the same as the 5-AT type, production of which will be continued. The actual dimensions of the 7-AT will follow very closely those of the 5-AT, which has

Although single-motored airplanes most commonly were used by individuals, by fixed-base operators, or by business organizations, many also were used by transport companies, the chief users of planes equipped with Pratt & Whitney engines. Single-motored planes in fact not only were used by the relatively small air lines operating off the main routes of air travel and by the branch or feeder lines of large transport companies, but also to supplement the heavy planes of such companies. Among the single-motored cabin planes that often were equipped with engines of approximately 300 horsepower were the Ryan, Fairchild, Stinson, and Stearman, built to carry two to six passengers or an equal weight of mail or express.

Single-motored planes for private operators customarily were equipped with motors of 100 to 225 horsepower, although some

won widespread recognition among professional airmen and air travelers by its performance.

"The most essential difference in the latest addition to the Ford air transport line is the substitution of two Wright J-6 motors of 300 horsepower each for two of the three Pratt & Whitney Wasps which power the 5-AT. The nose motor, however, will be a 425 horsepower Wasp, which with the two wing motors will produce 1,025 horsepower. Economy of operation is gained by the new arrangement of motors. The 7-AT type has a wing spread of approximately 78 ft. and a length of about 50 ft. overall. Its wing area is 835 feet and its height a trifle more than 13½ ft.

"The new craft will give a top speed of 134 miles an hour, and its cruising speed is 112 miles an hour. The stalling speed is 63 miles per hour. The radius of action is 625 miles. It has a service ceiling of 14,000 ft. and an absolute ceiling of 15,600, or only 240 ft. less than three miles. The ship can carry a useful load of 5,630 lb., bringing its total weight, fully loaded, to 12,910 lb. It can carry 281 gal. of gasoline and 26 gal. of oil.

"The average width of the cabin is 4½ ft. and the average height 6 ft. The length is a trifle less than 19 ft. Fifteen persons, including the pilot and co-pilot, can be carried. Baggage space has been provided. New and unusually attractive exterior finishes, such as that shown on the Ford demonstration plane at this year's aviation shows, are available. One of the features is the "ply metal" interior trim, developed to Ford specifications, and consisting of two thicknesses of duralumin with a core of balsa wood, the latter acting to deaden the noise of the motors.

"The cabin is fitted with every convenience for passengers, with roomy, leather-upholstered aluminum chairs, adjustable to three positions; dome lights, individual bracket lights, a wash room, individual windows and interior furnishings that give the cabin a tone of quiet richness, but with an emphatic note of cheerfulness."

The following performance data were given for the Ford 5-AT powered with three 425 horsepower Pratt & Whitney Wasps in *Air Transportation, Directory number*, August 31, 1929:

Capacity.....	14 passengers, two pilots
Useful load.....	6,000 pounds
Gross weight loaded.....	13,500 pounds
High speed.....	133 m.p.h.
Cruising speed.....	113 m.p.h.
Landing speed.....	64 m.p.h.
Ceiling.....	18,000 feet
Climb.....	950 feet per minute

had motors of as much as 300 horsepower. The chief demand for motors of the 300 horsepower class, however, was from transport lines. Proof of such a demand was afforded by the experience of one of the company's competitors which was known to have made substantial sales of an air-cooled fixed radial aircraft engine of 300 horsepower to plane manufacturers for installation in planes used by transport operators.

By standardizing on one make of motor in their operations, transport companies could realize various advantages, and it was this fact that led them to suggest that the Pratt & Whitney Aircraft Company add a lighter motor to its line of products. If, for example, a transport operator used only Pratt & Whitney motors in his planes, his mechanics would become specialists on motors of that make and hence more competent to work on them. Again, each make of engine required expensive special tools for major repairs, although these special tools generally could be used on all sizes of motors of that make.

Standardization on a single make of motor would effect the greatest economies for the air transport operator, however, through the elimination of duplicate stocks of spare parts. Even such minor parts as nuts and bolts rarely could be used on two makes of motors even though they were of equal horsepower; whereas parts were to a large extent interchangeable for engines of the same make but of different horsepower. Eighty per cent numerically of the parts of the Wasp and Hornet motors, for example, were interchangeable. Air transport lines customarily maintained a stock of spare parts for each make of motor in use. Up to a certain point, the number of engines used by a transport line, if they were of the same make, did not directly affect the size of the spare parts inventory, since a minimum stock must be carried for emergency purposes whether the operator used one or fifty engines.

A substantial number of air transport companies were authorized service representatives of the Pratt & Whitney Aircraft Company and, as such, would derive a still further advantage from the introduction of a 300 horsepower Pratt & Whitney motor. The authorized service stations received a dealer's discount of $33\frac{1}{3}\%$ on all purchases of spare parts for Wasp and Hornet motors. Inasmuch as it was customary for engine manufacturers to require that their service representatives should not also represent com-

peting manufacturers, the Pratt & Whitney representatives, under existing conditions, could not obtain the dealer's discount on spare parts for whatever make of 300 horsepower motor they used. If a 300 horsepower Pratt & Whitney motor was introduced, however, the company's authorized representative would be given the $33\frac{1}{3}\%$ discount on spare parts for it as well as on spare parts for Wasp and Hornet engines.

Executives of the company were satisfied that there would be a real demand from air transport operators for a 300 horsepower Pratt & Whitney engine. It was necessary, however, to take into consideration the probable effect on the company's net profits of the proposed extension of the line of products. The 300 horsepower motor, to justify its manufacture, must return the company a fair profit when sold at a price approximately the same as that of competing engines of the same class.

Upon investigation, the company found that manufacture of a lighter motor was unlikely to involve new designing or manufacturing problems. A 300 horsepower engine could be designed in accordance with the basic plans of Wasp and Hornet engines. Eighty per cent of the total number of parts could be made interchangeable with those for Wasp and Hornet engines, although this did not include many of the more expensive parts, such as the crank-shaft, cylinders, master rods, pistons, and main crank case. The machinery already in operation in the company's plant was suitable for manufacture of the lighter motor; the only need for additional equipment would arise from the increase in volume of production.

It was unlikely, moreover, that new marketing problems would be encountered. The company sold its engines directly to manufacturers of airplanes by means of its executives and two salesmen, who made frequent visits to such manufacturers. Substantially the same manufacturers who constituted the market for Wasp and Hornet motors would be the potential customers for a 300 horsepower engine. Such manufacturers usually confined their activities to the manufacture and sale of airplanes designed to carry heavy loads; their planes rarely were equipped with engines of less than 300 horsepower. A moderate demand for a 300 horsepower engine might come from manufacturers of pleasure planes of high performance standards and of planes for use in the transportation of executives and salesmen, but this demand would

be relatively unimportant and need not be cultivated intensively. As in the case of the Wasp and Hornet motors, transport lines would be the chief users of planes equipped with the 300 horsepower motor. Since this was true, no new servicing problems were likely to be encountered.

In the opinion of executives of the company, the only disadvantage that would arise from the manufacture of a 300 horsepower engine was that, for the first time, the Pratt & Whitney Aircraft Company would be entering a competitive field, in which another manufacturer already had achieved success and was strongly entrenched; Wasp and Hornet engines were the first ones of the air-cooled radial type and of their respective horsepower classes to be introduced. On the other hand, the executives believed that the company would have little difficulty in establishing itself as a manufacturer of engines of the 300 horsepower class in view of its dominant position in the production of the larger horsepower classes.

As a result of its consideration of its manufacturing and distributing facilities and of the condition of the industry as a whole, the Pratt & Whitney Aircraft Company decided to add a 300 horsepower aircraft engine to its line of products. The company judged that this step would strengthen its position with transport line operators, and that a smaller motor could be manufactured, marketed, and serviced without any important addition to its existing facilities.

In making its decision, the company recognized that, had the new product appealed to a class of plane manufacturers or to a class of plane users different from those reached by the Wasp and the Hornet engines, the answer to the question might not have been the same. In the company's opinion, the introduction of a motor of less than 300 horsepower might have involved new manufacturing problems; certainly it would have involved new marketing problems, because such an engine would appeal to those manufacturers who supplied the demand for light planes for fixed-base operators and from pleasure users rather than to those manufacturers who supplied the transport line market.

COMMENTARY: The decision of the Pratt & Whitney Aircraft Company to add a 300 horsepower engine to its line of products did not involve any departure in either its manufacturing or its marketing

program from the company's previous policies, inasmuch as the 300 horsepower engine was designed primarily for transport use.

At the time this decision was made, there was considerable uncertainty as to the type of engine likely to be most in demand for transport use. Considerations of economy in operation were urged in favor of substituting 300 horsepower engines for those of larger horsepower on trimotored planes. At the same time, these same considerations of economy pointed also in the direction of (a) multimotored planes carrying from 18 to 32 passengers, equipped with 2 to 4 motors of large horsepower, that is, 500 horsepower and up, and (b) 8 to 10 or perhaps 12-place planes equipped with a single motor of large horsepower, such as that projected by Bellanca. Both these types of planes theoretically offered advantages in economy of operation over trimotored planes with engines of 300 horsepower. Neither of these types of planes, however, was in use other than experimentally at the time the Pratt & Whitney Aircraft Company made the decision to add a 300 horsepower engine to its line. At that time it was also true that, in response presumably to some public demand for trimotored planes on the basis of considerations of safety, there were projected by several plane manufacturers trimotored planes, in some instances as small as 6 or 8-place, equipped with motors of as low as 150 horsepower. It appeared likely, however, that this development was sporadic rather than indicative of a genuine trend. On the other hand, it was by no means clear that the air traveling public was ready to accept single motored 8, 10, or 12-place transport planes with the same confidence that it gave to multimotored planes.

In determining its future manufacturing and marketing policies, the Pratt & Whitney Aircraft Company needed, of course, to give careful consideration both to the technical development of new types of transport planes and also to the attitude of the public towards these various types. The decision of the company, however, to add a 300 horsepower engine, since it did not involve any particularly new problems in either manufacturing or distribution, may be approved as a sound one, inasmuch as it gave the company a larger line of engines and placed it therefore in a more strategical position to meet future developments in the air transport market.

June, 1930

M. P. M.

II. COVERAGE OF MARKETS FOR AIRPLANES

5. VIKING FLYING BOAT COMPANY (A)¹

MANUFACTURER—FLYING BOATS

MARKET COVERAGE—*Size of Territory for Initial Sales Promotion.* In determining its initial sales program, a company beginning the manufacture of flying boats had a choice of two courses: to cover as wide a territory as possible by appointing a large number of retail outlets, or to restrict its initial effort to a relatively limited territory adjacent to its plant. Because of the difficulty of securing numerous competent dealers, the need for close personal supervision of dealers, and the need for assuring profitable initial operations and for financing more extensive future distribution, the company decided to confine its initial selling efforts to small market areas.

(1930)

Among the problems of sales promotion confronting the Viking Flying Boat Company early in 1930, prior to the completion of its first flying boat, was that of determining the size of the territory in which it should attempt to sell its products when it first marketed them. The president stated that the company could follow one of two courses: as many airplane manufacturers had done, it could attempt to cover as wide a portion of the United States as possible, by appointing a large number of retail outlets; or it could restrict its initial sales promotion effort to relatively limited territories adjacent to its plant in New Haven, Connecticut, and to its operating base at Miami, Florida.

The Viking Flying Boat Company had been organized in 1929 to manufacture Viking flying boats with or without amphibian equipment. The design was an American adaptation of the Schreck F.B.A., a French flying boat of outstanding flying characteristics. The Schreck flying boat was standard equipment in the French navy, was in use by the navies of several other countries, and was widely used in most countries except the United States. The president of the Viking Flying Boat Company stated that the Schreck F.B.A. was probably the outstanding flying boat in the world. The company, capitalized at \$250,000,

¹ See also Viking Flying Boat Company (B), p. 311.

owned a small plant located in New Haven, Connecticut; in addition, it operated an aerial taxi and short hop service with flying boat equipment in Miami, Florida.

The Viking flying boat was a 4-place, open-cockpit biplane, with a Wright Whirlwind 225 horsepower motor operating a pusher propeller. Its high speed was 102 miles an hour; cruising speed, 90 miles an hour; landing speed, 40 miles an hour; ceiling, 14,000 feet; and climb, 600 feet a minute. With amphibian equipment, its high speed was 92 miles an hour; cruising speed, 84 miles an hour; landing speed, 45 miles an hour; ceiling, 12,000 feet; and climb, 550 feet a minute. The amphibian model sold at retail for \$13,500, while the price of the flying boat was slightly less.

The president of the company believed that, for the immediate future at least, the purchase of airplanes by private individuals would be confined to the wealthy classes, because of the high initial cost of planes and the high cost of upkeep. The market for Viking flying boats and amphibians was especially restricted because of their comparatively high price, and the company was unwilling to reduce the price to a point where it would make no profits on sales. The president was convinced from personal experience, however, that the Viking flying boats and amphibians would appeal to two promising markets: wealthy sportsmen, who would purchase flying boats or amphibians if models satisfying the requirements of reasonable price, adequate performance, and safety were offered them; and fixed-base operators located on the coast line or near large inland bodies of water, who would be large purchasers when they realized the advantages of amphibian or flying boat equipment for their operations.

The primary advantage of amphibians or flying boats over land planes, in the president's opinion, lay in their safety; landing facilities for them often were more readily available than for land planes, and low flying was less hazardous. Throughout large sections of the United States fenced fields, closely spaced buildings or farms, forests and woods, or the rugged character of the terrain made it difficult either to find, in case of need, or to build adequate landing facilities for land planes. This was especially true in those sections where a large per capita wealth or a large population offered an otherwise excellent market for airplanes. At the same time, such regions usually possessed rivers, harbors, or lakes which

offered excellent and readily available landing facilities for amphibians or flying boats. Flying boats and amphibians, consequently, could be used for low flying with a relatively high degree of safety, since even within a small gliding radius a suitable place for landing could be found. The president of the Viking Flying Boat Company stated that low flying had great attractions over high flying, since it made it possible to distinguish details of the landscape.

Finally, the large number of yachts, motor boats, and speed boats in use indicated that there were many people who desired to be near or on the water. To these people amphibians would appeal and would have the added attraction of permitting travel over the water at a speed far in excess of that of the fastest motor boats.

The safety of the flying boats and amphibians, and the special attractions of such a method of travel also would be important factors in developing a demand from fixed-base operators. The president of the company decided to develop the private market first, however, because of his wide acquaintance among sportsmen who might purchase Viking flying boats and amphibians for private use, and because he knew that there were a strictly limited number of fixed-base operators using, or in a position to use, flying boat and amphibian equipment in 1930.

The president of the Viking Flying Boat Company had not reached a final decision on the method of distribution which the company would employ. He stated that most manufacturers of flying boats and amphibians sold their products directly to dealers for resale to private users, or directly to the ultimate purchaser through a factory salesforce. He expected that his company would decide to sell directly to dealers, although it probably always would make at least a few sales directly to users.

Two methods of regional sales development had been used by airplane manufacturers. Some had attempted to obtain as widespread distribution as possible within a short time, in the belief that they could reach a greater number of prospective purchasers thereby, and, consequently, that they could obtain a large initial volume of sales. Others had expanded their sales territories only after they had become well established in the sections adjacent to their factories, under the theory that intensive exploitation of the immediately surrounding territory was less costly than the

first method, and that they could sooner attain profitable manufacturing operations and be better able to finance entering new territories.

From a theoretical point of view the president of the company believed that the first plan might be desirable, since, presumably, a number of retail outlets operating over a wide territory should result in greater sales than a smaller number selling in a restricted territory. On the other hand, it was his opinion that certain practical difficulties involved in such a course of action in 1930 would make adoption of the plan of questionable value. Of greatest importance was the difficulty of selling airplanes, and especially flying boats and amphibians, which were comparatively rare in the United States and the advantages of which were not generally recognized. The sale of amphibians and flying boats, in the president's opinion, required a large amount of intensive, personal effort. Provided that the Viking Flying Boat Company could induce dealers of proven selling and business ability to take an active interest in the sale of Viking flying boats and amphibians, widespread distribution might be feasible, but the president believed that the company could obtain only few dealers of such qualifications.

In the first place, a majority of airplane dealers were interested primarily in the operation of aircraft rather than in selling them, since profitable operations in the former field of activity were more likely than in the latter. He believed that most dealers had little knowledge of the proper methods of selling airplanes and were unwilling to make an effort to learn. Furthermore, most of the few dealers who possessed merchandising ability already sold several makes of planes, and it would be difficult to induce them to take an active interest in the sale of an additional line. Finally, nearly all airplane dealers operated from flying fields or land airports, and did not possess the necessary docking facilities for dealing in amphibians and flying boats. As a result, even if the company could obtain a sufficient number of dealers having docking facilities it would be necessary to supervise them closely from the factory, and the cost would be prohibitive for this company.

On the other hand, there were certain factors which appeared to the president to favor a policy of selling Viking flying boats and amphibians in a restricted territory. Close personal supervision

of a few dealers would be entirely feasible; only a small part of the time of one executive of the company would be needed for this work. Furthermore, the president of the company was acquainted with a number of prospective purchasers of Viking planes within the territory surrounding the factory and he was convinced that the company could make sufficient sales in New England and in New York City and Miami and their environs to assure profitable operations initially and provide for financing distribution over a wider territory in the future.

Accordingly, the president of the Viking Flying Boat Company decided to restrict the company's initial selling effort to New England, the vicinity of New York City, and that section of Florida in the vicinity of Miami. He considered these to be promising territories, since the population was large, a number of wealthy people lived therein, and the terrain was favorable for flying boat or amphibian operations. If it could secure competent dealers, the company would make use of their services; otherwise, the executives of the company would sell the planes directly to users. The terms under which dealers would operate had not been determined.

COMMENTARY: At the outset of its career, the Viking Flying Boat Company had a number of marketing problems to solve, including: classification of product in terms of types of demand; type of distributive system to use; type of firms to appoint; discounts and other terms of sale to establish; and program of market coverage to adopt.

The company's intended policy of direct sale to dealers can be accepted as worthy of experiment.² The question whether to appoint airplane dealers or motor boat dealers as retail outlets was subject to many of the same considerations as are brought out in the case and commentary on the American Aeronautical Corporation,³ but with the distinction that the Viking line was to include a flying boat which could not be landed except on the water. Even if airplane dealers had to rent dockage for these flying boats, however, it was to be concluded that airplane dealers were a more logical channel of distribution than motor boat dealers. Discounts and other terms of sale, as has been

² See cases of the American Aeronautical Corporation, pp. 114-126; Fleet Aircraft, Inc. (B), pp. 152-161; Great Lakes Aircraft Corporation (A), pp. 162-171; Stinson Aircraft Corporation (A), pp. 234-237.

³ Pp. 114-126.

stated elsewhere, should have been sufficiently liberal to justify the company's demanding active cooperation from dealers.⁴

Direct sale from the factory to private users, which is one of the sales policies contemplated in the case, represents the extreme limit of simplification in distributive systems. This policy involves no intermediaries whatever; the manufacturer goes straight to the user. But unless the maker knows his potential customers personally, as was true in this case, he must perform all the retailer's customary functions and incurs the corresponding expenses. Since private users of airplanes typically buy only one plane at a time, the policy of direct sale must be regarded as too expensive for general use. The instances of personal acquaintanceship which make direct sale economical stand, therefore, merely as exceptions to sound marketing policy.

The focal issue stated in the case was whether to seek initial distribution in a small or in a large geographic area. For a company such as this one, planning to start selling for the first time and with only a small output, cultivation of a small market area is often preferable to an attempt at wide coverage. The advantages which the Viking Flying Boat Company could have expected to gain from a policy of progressing successively from one small area to another may be summed up as follows:

(1) A valid claim on the self-interest and cooperation of dealers by allotting each dealer sufficient planes for profitable sales operations.

(2) Close and continuous contacts between company executives and dealers with opportunity economically to observe, appraise, and assist in the dealers' initial sales efforts.

(3) Opportunity to evolve an effective plan of distribution before inaugurating it on a large scale.

(4) Ability to fill satisfactorily such demand as might be stimulated.

Ordinarily, the combined factors of providing adequately for the self-interest of dealers and for experimentation are sufficient to outweigh any gains obtainable from having the same quantity of product on sale over a large area, with diluted attention on the part of any one dealer, and this case is no exception. Provided that the product had intrinsic sales merit, furthermore, there was little risk that the pre-designation of desirable dealers in other territories by competing manufacturers would block later expansion. It can be judged to have been sound policy, therefore, for the company to limit both the

⁴ See commentaries on the cases of the Hayden Aviation Company, pp. 137-140; Fleet Aircraft, Inc. (B), pp. 160-161; Stinson Aircraft Corporation (A), pp. 236-237; Great Lakes Aircraft Corporation (A), pp. 169-171.

territory to be covered by dealers for its flying boats and the number of dealers to be appointed for that territory.

The company's decision to disregard initially the market among fixed-base operators, however, can be questioned. Those operators in many instances not only were users of planes, but also purchased planes for resale. If, as early as its volume of output permitted, the company sold planes to such dealer-operators wherever located, not for resale but for use, it would broaden the reputation of Viking aircraft, and at the same time assure itself of the interest of the operator-dealers when later it was ready to expand its resale market areas.

Sale to such buyers would have been facilitated by the fact that they already were interested in aeronautics, were relatively few in number in comparison with private buyers, and could be identified readily. Use of Viking planes by a number of operators would have given the company's dealers for resale a valuable selling point. In no event, however, should dealerships for resale have been granted before the company was able to supply each dealer a sufficient number of units to justify his active cooperation.

June, 1930

C. I. G.

6. BELMORE AIRCRAFT COMPANY¹

MANUFACTURER—AIRPLANES

MARKET COVERAGE—*Extension of Distributing System.* An airplane manufacturer received two applications for distributors' franchises in a state where it had only partial distribution for its products. The two applications, both of which requested a franchise covering the entire state, were from a retailer of high-grade automobiles in the eastern portion of the state and from an office equipment firm in the western part. Although the eastern half of the state already had been granted to a distributor in another state, this distributor had been inactive in the sale of planes. Being uncertain, however, whether one distributor could cover the entire state satisfactorily, the company sent a representative to study the territory and to investigate the suitability of the applicants.

(1930)

At the beginning of 1930 the Belmore Aircraft Company was still in process of extending its distributor-dealer system for the sale of its aircraft. In January, the problem arose as to how to secure additional representation in a state where Belmore distribution was only partially provided. Two firms in that state had applied for distributors' franchises, and the company was uncertain whether to accept either or both of these applications.

The Belmore Aircraft Company and its predecessors had had long experience in the manufacture of airplanes. The enterprise had been founded originally by three men who had experimented with gliders before the World War and been assigned to an airplane factory during the war. In 1921, they had started the manufacture of aircraft on a small scale. By the process of experimenting with each plane, studying its flying characteristics, and making changes in design as suggested by their observations, these men gradually had improved the construction and flying qualities of their products. Throughout, they had sought to obtain safety in flight with high speed, quick take-off, slow landing, and economical operation.

¹ Fictitious name.

Demand for these airplanes had grown slowly after the war period. Until about 1925, ex-military flyers constituted practically the only market, and they at first were satisfied to use the surplus government stocks of small airplanes, which were offered at prices averaging about \$1,500 each. The operations from which these buyers typically sought an income included exhibition, or "barnstorming" flights, taking passengers for short pleasure rides, performing taxi services, conducting flying school courses, and engaging in crop-dusting and photographic activities. As improved models of airplanes were offered, these operators discarded the obsolescent government types and began to buy such aircraft as those manufactured by the founders of the Belmore Aircraft Company. In 1925, a few of these operators ventured into the field of airplane selling, and the number of operators who sold planes in addition to their other activities increased rapidly after the long distance flights of Lindbergh and others in 1927 gave a marked stimulus to public interest in aviation.

It was largely from among operators such as these that the sales representatives of the Belmore Aircraft Company had been selected. By 1930, the company had appointed 35 distributors, who in turn had appointed about 275 retail dealers. This gave the company fairly complete coverage of the northeastern parts of the United States, and more sparse coverage of much of the rest of the country. Except in cases of government purchase and purchase by quantity buyers such as large business firms, the Belmore Aircraft Company made no sales directly to airplane users, but relied wholly upon its distributors and dealers. The dealers were appointed by the distributors, and the company exercised little direct supervision over dealers' activities.

The company's recently enlarged factory had facilities for the annual production of about 1,000 planes. For 1928 and 1929 the company's annual sales had been in the vicinity of 600 airplanes and had yielded satisfactory earnings. The company's major efforts were given to the production and sale of commercial, rather than military, airplanes. At the end of 1929, the company's line consisted of numerous models of 3-place open-cockpit biplanes ranging in price from \$2,200 to \$10,000 according to differences in motor equipment and specifications. No large transport planes were included.

One of the most popular of the company's products was priced at \$6,150 and had the following specifications:

Specifications	Equipment
Length Overall..... 23' 0"	J-6 Wright "Whirlwind" motor
Height..... 9' 0"	(165 H.P.—5-Cylinder)
Span..... 30' 8"	Wood Propeller
Chord..... 62½"	Bendix Brakes
Wing Area..... 288 sq. ft.	30 × 5 Wheels
Gap..... 4' 11"	Navigating Equipment
Gasoline Capacity..... 65 gals.	65-Gallon Gas Tank
Weight Empty..... 1530 lbs.	3-Place . . . Dual Controls
Useful load..... 1070 lbs.	Customer's Choice of Colors
Wing Loading..... 9.0 lbs. sq. ft.	<i>With Metal Propeller \$245 extra</i>
High Speed..... 120 m.p.h.	
Landing Speed..... 44 m.p.h.	

The Belmore Aircraft Company had been governed in granting distributorships by the experience of the applicant firm with aviation activities, by the firm's financial and business standing, by its ability to appoint dealers and to promote retail sales in its immediate locality, and by the extent to which aviation had been developed in the territory for which the distributorship was requested. Upon accepting an application, the company executed a written agreement granting the distributor exclusive representation in a given territory. The distributor agreed to buy a certain number of Belmore airplanes, for delivery at specified times during the year, and made a preliminary deposit to be applied against payments for planes as accepted by him. Important sections of the agreement were as follows:

1. The distributor agrees to and hereby does purchase of the Company . . . airplanes to be delivered as herein indicated.

Model	Number of Planes Contracted For	Month of Delivery											
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.

2. Distributor agrees to pay The Company for such airplanes, list price, current at time planes are actually put in transit by delivery to the carrier or delivered to the distributor or his agent at factory, less discount, as per following schedule, such prices being f.o.b. factory. All planes sold under this contract shall be paid for upon shipment and presentation of sight draft to B/L for said planes.

SCHEDULE OF DISCOUNTS

The following scale of discounts covers the sale and billing of airplanes purchased by this contract and during the term of same:

Type of Motor:	Whirlwind	OX or Hispano-Suiza
Discounts to Distributors.....	20%	25%
Distributors' Discounts to Dealers.....	15%	20%

4. Distributor places with The Company a cash deposit of \$ to be retained by The Company until all the terms of this contract have been fully complied with. This deposit is placed on the fulfillment of the airplane account only, and is to insure The Company that all charges will be paid on planes ordered, shipped or assembled under this contract.

5. Either party may at its option with or without cause, at any time, cancel this contract by mailing to the other a written notice of its intention so to do. Cancellation by either party shall operate as a cancellation of all orders for planes or parts not actually shipped at the mailing of such notice.

13. Distributor agrees to maintain in a suitable location in the City of . . . proper quarters for the sale, repair and storage of airplanes and to keep on hand for demonstration and display purposes at least one airplane each of the various models and to carry in stock a reasonable quantity of supplies and spare parts for the repair and maintenance of airplanes manufactured and sold by The Company.

14. Dealers appointed by distributor should at all times maintain the following equipment and personnel, and conform to the following requirements:

1. At least one of the Company's latest models, for demonstration and show purposes, to be kept at all times in first-class condition, as regards appearance and mechanical condition, and in a suitable enclosure or hangar to protect it from the elements.

2. Hangar or suitable storage place must be maintained for at least one new unused airplane complete, either set up or dissembled.

3. A properly organized sales and service personnel qualified to demonstrate and service airplanes and promote sales.

4. Suitable signs embodying the regular BELMORE wing trade-mark are to be placed on all hangars and buildings of the dealer's place of business, advertising the fact that he is an authorized BELMORE sales and service dealer.

5. All sales service and other forms furnished by The Company must be used and sent in to The Company, at intervals specified.

6. Dealer organizations should make it a point to keep in touch with all BELMORE advertising activity and familiar with the latest magazines, bulletins, catalogues and other literature available.

15. Distributor agrees to use his best efforts within the territory granted him to sell The Company airplanes, to establish therein as soon as possible at all places where competing airplanes are sold, dealers who, considering competition and other conditions in their localities shall properly and to the satisfaction of The Company represent, display and push the sale of The Company airplanes.

16. Distributor agrees to handle during the term of this contract no other airplanes unless permission is given in writing by The Company, and further agrees to judiciously advertise The Company airplanes and make all reasonable efforts to promote and increase their sale, and that they will not directly or indirectly, sell or offer for sale any of The Company airplanes in territory other than above specified.

17. The Company reserves the right to sell and deliver new Company airplanes in the territory herein described in exchange for advertising or merchandise or service purchased or contracted for by it or to sell and deliver Company airplanes in said territory to persons or corporations purchasing for the United States Government or any of its departments or to any government or to any National Institution or to sell and deliver Company airplanes in said territory to persons or corporations who are large users of airplanes and who purchase through some central organization for use in various sections of the country, or to sell and deliver Company airplanes in said territory to persons or corporations distributing their products in a national way or to sell to any one in said territory secondhand or shopworn vehicles of any make or name whatsoever.

18. The Company reserves the right to reapportion the territory of the Distributor or withdraw from the Distributor any portion of said territory, if, in the opinion of The Company, the Distributor cannot properly canvass or work said territory or is not properly promoting the sale of Company airplanes in said territory.

21. The Distributor agrees not to solicit or sell prospects of another BELMORE distributor or dealer. All sales constituting an infringement will call for an immediate adjustment and payment to said infringed distributor or dealer, that percentage of the list price of infringing sales decided by The Company as a fair and just settlement with infringed party.

23. The Distributor hereby agrees to make full report to The Company of all sales on forms furnished by The Company for the purpose within five days after delivery of planes.

24. To enable The Company to protect its various dealers in the territory assigned to them and in order that it may be fully advised at all times of the manner in which the Distributor is canvassing its territory and carrying out the terms of this contract, it is agreed that the Distributor shall furnish to The Company before closing an agreement with any associate or sub-dealers a copy of said agreement, submitting the same to The Company for its information and possession, but this provision shall not be deemed to make any such associate or sub-dealer the agent, sub-agent or dealer of The Company and no

contractual relations whatsoever are thereby created between The Company and any such dealer, associate or sub-dealer.

27. This contract shall remain in force (for the number of planes herein specified) from year to year, until cancelled by either party, in accordance with the provisions herein contained.

29. The Company has for years maintained both friendly and profitable relationship with the dealers handling its products. This was made possible through the many constructive business policies established by The Company as conditions demanded from time to time. Its future policies will be predicated on the same basis as heretofore, and for the selling year, it hopes to further strengthen its relations with distributors and dealers and assist them in establishing themselves as the leading merchants in the aircraft industry.

It was the company's policy not to attempt to force acceptance of the number of planes specified in Section 1 of the agreement, but rather to cancel the franchises of distributors who failed to secure a volume of sales consistent with the apparent potentialities of their territories. The company appraised the current activities of its distributors from the monthly inventory and sales figures which it received from them. The provisions of the agreement as to maintenance of planes for demonstration and display also were not strictly enforced.

It had been the experience of the Belmore Aircraft Company that its distributors and dealers, even in areas where opportunities for selling airplanes were numerous, typically continued to conduct flying schools and to engage in other airplane operations as their major means of securing income. The company had not sought to induce its distributors and dealers to use any uniform accounting system, and, in general, they kept only elementary accounts, so that the relative costs and profitableness of their different types of activity, such as plane rentals, plane sales, and flying school operations, could not be determined. The company recognized, nevertheless, that in most instances its sales representatives could not realize a net profit solely from the sale of Belmore airplanes. As a result, it was the company's policy to permit its distributors and dealers to sell other makes of aircraft, provided no directly competing lines were carried. Even among firms handling several makes of airplanes, there were few who relied upon airplane sales as their sole or major source of income.

As one means of stimulating distributors and dealers to put more emphasis on the sale of airplanes, the company was preparing

sales manuals planned especially to aid in training retail salesmen for the task of selling airplanes. The company advertised in several magazines devoted to aviation, but had not advertised in periodicals of more general circulation. Participation in aircraft shows and promotional flights, however, was an established policy.

In a preliminary attempt to define the nature of the market for its products, the Belmore Aircraft Company in 1929 had sent questionnaires to all recorded civilian purchasers of Belmore airplanes; the list was believed to be nearly complete. Over 65% of the questionnaires were filled out and returned, and the results when tabulated showed that the planes were being used for the following purposes:

Use	Total Returns = 100%
Commercial Revenue.....	50%
Pleasure.....	25
Business Transportation.....	25

In addition to these data, the company compiled currently, by states, figures as to number of airports, number of licensed pilots, and sales of airplanes. The reports and publications of the Aeronautics Division of the United States Department of Commerce were the primary sources for this information.

The company had concluded that to become a successful distributor for Belmore airplanes, a firm should have at least \$25,000 capital to devote to aviation activities, should have at least three Belmore airplanes in stock or in use, and should be interested in maintaining some of the supplementary activities mentioned above. The company had drawn up no specifications, however, as to size of city, town, or territory to be served by a distributor or dealer, nor as to the number of planes that must be sold annually to return a net profit. Each application for distributorship was treated on its merits as an individual case; as to distributors' appointments of dealers, the company insisted that each dealer should plan to own at least one Belmore airplane at all times.

The two requests for distributorships under consideration at the beginning of 1930 came from a state which appeared to offer considerable opportunity for the sale of Belmore airplanes. The eastern half of the state already had been granted to a distributor located in an important city just across the eastern boundary in

another state. This division of the distributor's territory between two states was not in itself considered undesirable, but the fact that the distributor had been inactive in the sale of Belmore airplanes caused the company to give favorable preliminary attention to the two new requests.

One of the requests came from a retailer of high-grade automobiles who was located in a large town in the eastern portion of the state. This dealer, a year previously, had acted as an airplane distributor but had relinquished his franchise because of the difficulty of selling airplanes. Since then, however, a much greater degree of public interest in aviation had developed, and the dealer sought a Belmore franchise for the entire state. In submitting his application, this dealer stated that he was a licensed pilot and that he already was using a Belmore airplane to call on distant automobile customers as well as to interest prospective customers in his firm by taking them for airplane rides. The Belmore Aircraft Company had learned that this dealer also was negotiating with a competing airplane manufacturer for a distributor's franchise.

The other application was from a firm located in the western half of the state, where the Belmore Aircraft Company had no representation. The firm applying had had no experience in aviation activities but had developed a highly satisfactory business in the sale of office equipment such as accounting and tabulating machines and supplies. This firm wished to embark on the marketing of airplanes as a means of putting capital surplus to use and was willing to consider forming a corporation for that purpose. This firm also requested a franchise covering the entire state.

If either application were accepted, the territory of the distributor in the adjoining state would have to be curtailed; such a move might result in cancellation of that distributor's franchise and rearrangement of the company's representation in that state. The executives of the company saw no serious objection to this. They had had no direct experience in the territory, however, and were uncertain whether one distributor could cover the entire state satisfactorily. Rather than decide the question at once, the Belmore Aircraft Company sent one of its sales officials to the state to study the territory and to investigate the suitability of the applicants.

COMMENTARY: Quite aside from the marketing issues which it presents, this case is valuable for the light which it throws upon the origins and development of the distributor-dealer system of marketing airplanes of the smaller, lower-price types. The first civil purchasers of these airplanes were chiefly former military flyers who turned to operating airplanes as a means of livelihood. The fact that a distributive system was built up around these men, who were adept at flying and were financially concerned with the operation of airplane services, is of much significance for an understanding of later developments. To them the sale of airplanes was secondary; and so it remained in large measure, even at the beginning of 1930. These men tended to attribute much of their own enthusiasm to prospective buyers, and only with difficulty would appreciate the resistances to be overcome in selling aircraft to the nonflying public.

The above observations are of general application to the industry, and are not confined to the particular sales representatives of the Belmore Aircraft Company. The specific problem which the company visualized was the question of distributorship in one state. At the time, neither applicant for a distributor's franchise was directly engaged in aircraft sales; one had had the advantage of flying experience and of selling aircraft; the other applicant, a firm successful in the sale of office equipment, possessed sufficient capital to organize a separate enterprise for the marketing of airplanes. In view of the developmental status of aircraft marketing, either applicant might come to be a satisfactory distributor for Belmore airplanes. Quite properly, the company postponed decision on the applications under consideration until it could make a first-hand analysis of the situation.

Although the questions of what firms to appoint and what territories to allocate were of considerable moment, a problem of wider significance was involved. That problem related to proper coverage of the market; in other words, the underlying issue was whether, in relation to its output capacity, the Belmore Aircraft Company had not already secured a sufficiently numerous and extensive distributive organization, and whether, consequently, the efforts of the company should not have been directed toward consolidating its position in the territory already entered. It is a fair question whether instead of giving time and thought to the investigation of new distributors, the company should not have called a halt on further additions and have commenced a rigorous study of existing sales outlets.

Lack of adequate, uniformly kept accounting systems among distributors meant that the company could not learn how profitable, or how unprofitable, distributors' sales of Belmore airplanes really were. It could not know how many of its planes a distributor must sell to

make a profit for himself, nor how many he should sell in a given market to justify his retention. Nor could the company know specifically whether the distributors typically performed a worth while function.² Perhaps the company should have arranged to sell directly to dealers. Perhaps distributors should have been retained and permitted to sell to large fleet buyers. The information secured from the questionnaires sent to civilian owners of Belmore planes showed that only 25% of those planes were in the hands of private users; 25% more were in the hands of business firms; the remainder were used for commercial operation—the usual flying school, taxi, and other activities. Did these proportions represent the results of effective, accurately directed sales and distribution methods, or was there opportunity for improvement?

These questions were of far more importance than the question of sales representation in any one area. To answer them, the company needed to secure not only precise knowledge of distributors' operating results, but also reliable knowledge of market territories.

June, 1930

C. I. G.

² See cases of the American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (B), p. 152; Great Lakes Aircraft Corporation (A), p. 162; and Stinson Aircraft Corporation (C), p. 272.

III. TYPES OF AIRPLANE DISTRIBUTION

7. HOLWORTHY AVIATION COMPANY¹

DISTRIBUTOR—AIRPLANES

SALES PROMOTION—*Display of Airplanes in Hangar.* A company which distributed airplanes and operated a service station for both engines and planes, in planning the construction of a new hangar at the municipal airport, contemplated including space for an airplane showroom. Although competing distributors did not provide showrooms in their hangars and usually were averse to the presence of the general public in or near the hangars, the company's sales manager believed that this practice discouraged public participation and interest in aviation. The company decided to devote approximately one-sixth of the floor space of the new hangar to a showroom, in which it planned to have a salesman on duty at all times and at least one plane on exhibition.

(1929)

In the summer of 1929, the Holworthy Aviation Company, which distributed airplanes and operated a service station for both engines and planes, was drawing plans for the construction of a new hangar. The company leased the land for its hangar from the municipal airport of a middle western city with a population exceeding 1,000,000. Contrary to the practice of other airplane distributors located at the same airport, the company contemplated devoting approximately one-sixth of the floor space of the new hangar to a showroom for the display of airplanes.

The single line of planes sold by the Holworthy Aviation Company was one of the most popular in the aviation industry, and the manufacturer had attained a large measure of success. The line included 12 models, from 2-place open cockpit biplanes to 8-place cabin monoplanes; the prices ranged from \$3,500 to \$16,000, depending upon the size of the plane and the type of engine used. The planes could be equipped with any of several makes of engines. The Holworthy Aviation Company carried in stock at all times 1 each of at least 6 of the manufacturer's 12 models of planes.

¹ Fictitious name.

The Holworthy Aviation Company distributed airplanes to several dealers within 150 miles of its home city and also sold planes at retail in the metropolitan area. Unlike a majority of plane distributors and dealers, the Holworthy Aviation Company carried on no fixed-base operations, such as flying school and aerial taxi service. The company's activities were confined to the sale and servicing of the make of airplanes which it sold and to the servicing of several makes of engines. The company was the central servicing agency in its territory for the planes and engines that it sold; other dealers performed light service, but complete overhauls and major repairs were obtainable only at the hangar of the Holworthy Aviation Company.

The company's salesforce consisted of the president, the sales manager, and one retail salesman. All were engaged in selling planes directly to consumers, but the president and the sales manager also sold to other dealers and advised them on the proper methods of selling planes. The salesmen secured the names of prospective customers from lists of persons who wrote to the plane manufacturer in response to its extensive advertising in trade journals and general magazines, and from personal contact with persons who visited the airport. The Holworthy Aviation Company's advertising appropriation had never exceeded \$500 annually; advertising was confined to infrequent small insertions on the aviation page of a local newspaper.

The airport where the company was located could be reached by automobile in less than 30 minutes from the business district of the city and in 15 minutes by the rapid transit system of the street railway and an additional short taxicab trip. The airport was in the vicinity of a low-class residential section. The nearest wealthy residential district was approximately 5 miles distant, and in order to reach it a drive of 30 minutes through congested streets was necessary; the time required by rapid transit was slightly less. Ample automobile parking facilities were available at the airport, and often in the summer several thousand spectators gathered there.

In addition to the Holworthy Aviation Company, two transport lines and five distributors of planes, who also sold at retail, made use of the airport facilities. Each of the plane distributors conducted a flying school and offered aerial taxi service; all were equipped to provide service for the planes which they sold, but not

all were equipped to provide engine service. Ten makes of planes were represented at the airport; prices ranged from \$3,500 for two-place, open cockpit planes to \$25,000 for elaborately equipped cabin planes. The Holworthy Aviation Company faced direct competition locally for nearly all the models it sold.

When the Holworthy Aviation Company was developing plans for its new hangar, the airport was undertaking a building program in order to receive an A1A rating, the highest rating granted by the United States Department of Commerce.² The field was being regraded and extended, and the original hangars occupied by the companies located at the airport were being torn down or moved in order to provide additional field space. All the airplane distributors at the airport had taken that opportunity to erect new hangars of a more permanent form than the frame structures formerly used.

The company planned to use brick, concrete, and steel construction in the new hangar and expected the cost to be approximately \$75,000. The hangar was to have a frontage on the landing field of 100 feet and a depth of 300 feet. Facilities were to be provided for complete service for overhauling and repairing planes and engines, for storage of planes and spare parts, and for office space. More than half the floor space would be devoted to the hangar proper, in which planes would be stored and serviced; a maximum of 14 planes could be stored in this area, but if servicing operations were being carried on fewer could be accommodated. In these general features, the Holworthy Aviation Company's hangar was essentially similar to those being erected by other companies at the airport.

None of the company's competitors had provided for showrooms. In each case, the office space occupied that portion of the hangar facing the flying field, and planes were displayed to prospective customers only in the center of that part of the hangar devoted to repair work and plane storage. Competing distributors usually were averse to the presence of the general public in or near the hangars and ordered people to keep away.

The sales manager of the Holworthy Aviation Company believed that this practice discouraged public participation and interest in aviation by leading the public to conclude that airplanes were delicate mechanisms that could not safely be inspected

² See *Airport Rating Regulations*, Information Bulletin 36, Aeronautics Branch, Department of Commerce.

without injury to the plane. On the other hand, a showroom such as the Holworthy Aviation Company was considering would serve as an invitation for anyone interested to enter and inspect a plane at leisure under conditions similar to those in an automobile showroom. Persons entering the showroom would be met by a courteous salesman, and could examine the plane on display under ideal conditions. The sales manager expected that the elaborate showroom and the presence of a salesman would encourage substantial numbers of persons to enter who had more than an idle interest in aviation and would restrain the crowds of idly curious from entering.

The executives of the company decided to provide space adequate for an 80 × 60 foot showroom facing the flying field; this space was in addition to that required for existing and probable future needs of the office force and repair and storage services. Upon completion of the hangar, the Holworthy Aviation Company undertook to furnish the airplane showroom in an inviting and comfortable manner. The floor of the showroom was of dark red tile; there was room for 2 planes of the open cockpit type to be displayed without overcrowding. On the 60-foot side of the showroom, facing the flying field, 2 large plate glass windows were installed, with an entrance in the center; on the 80-foot side, 4 plate glass windows were placed. Behind each of the front windows and facing the flying field were placed easy chairs, a table containing the latest copies of aviation trade journals, and several floor ash trays. Woolen rugs were laid under and near the easy chairs.

The company planned to have a salesman on duty in the showroom at all times and to have at least one plane on exhibition. Other models would be kept in the main part of the hangar. The salesman was to approach visitors, ask them if they were interested in seeing the plane on display, explain the advantages of flying and the features of the plane, and distribute literature describing the company's line of planes. If a visitor showed an interest in a model of plane other than the one on display, he was to be taken to see the particular model if it were in stock. If not, and if the visitor seemed likely to make a purchase, the Holworthy Aviation Company would rent a plane of that particular model from the nearest distributor owning one and arrange for a demonstration flight.

Inasmuch as the showroom had been in operation only since late in the fall of 1929, the sales manager had not had the opportunity of viewing the practical effects of his policy at the time this case was reported. At that time, none of the competitors of the Holworthy Aviation Company had added showroom space to their hangars.

COMMENTARY: The Holworthy Aviation Company was in a somewhat unusual situation in that it carried on no fixed-base operations. This circumstance perhaps accounts for the fact that this company was giving active attention to its retail selling problems.

The plan of having the showroom located in the company's hangar at the airport involved no appreciable additional expense and was at least temporarily advantageous since airports for some time to come probably would continue to attract a good many people interested in or curious about aviation.

This case raises a number of questions as to the future conduct of retail sales activities for airplanes, and in this connection it can be compared with the case of the Mulliner Motor Company.³ It seemed possible in 1930 that flying schools would be divorced from sales activities within the relatively near future. Whether service activities also would be divorced from sales activities was by no means clear. In the event that service and sales activities should become separated, it was quite possible that no display and sales activities would be carried on at airports but rather that these activities would be conducted at more readily accessible locations. The possibility also existed that companies carrying on both sales and service activities might find it necessary to maintain two places of business just as many automobile dealers now have their service stations at different locations from their salesrooms.

A highly uncertain but perhaps eventually determining factor in the situation was that of future airport location.

June, 1930

M. P. M.

³ See case of the Mulliner Motor Company, p. 76.

8. MULLINER MOTOR COMPANY¹

DISTRIBUTOR AND DEALER—AUTOMOBILES

SALES PROMOTION—*Display of Airplanes in Automobile Showroom.* A company which was a distributor and dealer of a well-known make of automobiles was asked by an airplane dealer to display an airplane in its automobile showroom. Because of his belief that the display of a plane would attract attention to the display of automobiles, the retail sales manager of the company consented to the proposal for a trial period of two months. Convinced at the end of this period that the attention value of the display had worn off, that no sales of automobiles could be ascribed directly to the plane display, and that the display might distract prospective purchasers' attention from the company's automobiles, he decided to discontinue the agreement.

(1929)

In December, 1929, the retail sales manager of the Mulliner Motor Company was approached by the president of the Wingfleet Corporation¹ with the proposal that the Mulliner Motor Company display an airplane in its automobile showroom. No written agreement was to be made, and the Mulliner Motor Company was not expected to take an active part in selling airplanes.

The Mulliner Motor Company was a distributor and dealer for a well-known make of automobile in the medium-price class. The company, which was located in a middle western city with a population of approximately 1,000,000, distributed automobiles to dealers within a surrounding territory of approximately 3,600 square miles; the company itself sold at retail in the metropolitan district of the city. In 1929, wholesale and retail sales were expected to exceed \$5,000,000.

The Mulliner Motor Company maintained display and service facilities in a modern building located on one of the principal thoroughfares connecting the downtown district of the city with a wealthy residential section. Several other automobile dealers and distributors also were located on this street in proximity to the Mulliner Motor Company. The company's street level show-

¹ Fictitious name.

room contained space for the display of 14 cars; in addition to this showroom, there was another on the second floor devoted to the display of new cars, and a third devoted to the display of used cars. Sales of new cars were made by 11 salesmen. The company stated that between 50% and 60% of the sales in units were made as a result of the prospective purchasers' initiative in visiting the showroom. Nearly all the remaining sales were made to previous customers; few were made through solicitation outside the showroom.

The proposal made by the president of the Wingfleet Corporation was that the Mulliner Motor Company display a plane in the most conspicuous part of the showroom. The plane was a 3-place cabin monoplane of a well-known make which retailed at approximately \$5,000 and for which the Wingfleet Corporation held a dealer's franchise in the metropolitan area of the city. The Wingfleet Corporation owned a hangar at the municipal airport six miles from the showroom of the Mulliner Motor Company. It maintained engine and plane servicing facilities and also carried on flying school and aerial taxi services.

The Wingfleet Corporation was to retain title to the plane and the Mulliner Motor Company was not expected to make sales of planes. The automobile salesmen were to be provided with literature describing the plane and its performance in detail, which would be given to persons who visited the showroom and evinced an interest in the plane. The names of any promising prospective purchasers of a plane were to be turned over to the Wingfleet Corporation, which would send a salesman to follow up such leads. In case a plane was sold to such a prospective customer, the Mulliner Motor Company would be granted a commission, but the amount of the commission was not stated.

After consideration, the retail sales manager of the Mulliner Motor Company had decided to accept the proposal for a trial period of two months. If automobiles were grouped under the wings of the monoplane, only one car would need to be removed from the showroom; such a grouping, in the retail sales manager's opinion, would increase the effectiveness of the automobile display. Despite the fact that at least two other automobile dealers located on the same thoroughfare had displayed planes within recent months, he anticipated that the attention value of the display would be important and that, after people had been induced to

enter the showroom to inspect the plane, they could easily be induced to inspect the automobiles as well. He was not interested in airplane sales; the agreement, in his mind, was purely a method of attracting attention to the company's automobiles.

After a period of two months, the retail sales manager of the Mulliner Motor Company decided to discontinue the agreement, since he was convinced that the attention value of the display had worn off; moreover, the spring selling season for automobiles was approaching, and he did not wish prospective purchasers' attention to be distracted from the company's automobile display. No planes had been sold as a result of the display and only one prospect for the purchase of a plane had been found; this prospective customer had later lost interest in such a purchase. The retail sales manager was unable to ascribe any sales of automobiles directly to the plane display, although he was willing to admit that the company might have found one or two new prospective automobile customers as a result. He stated that over 80% of those attracted by the plane display had been children under 15 years of age. Many children had been accompanied by their parents, however.

COMMENTARY: There were no particular advantages to either party from such an arrangement as described in this case. The airplane dealer could not hope to make sales or even to get the names of prospects effectively from the display of a plane by an automobile dealer. On the other hand, from the standpoint of the automobile dealer, while the display of the plane might attract the attention of passers-by, it also distracted the attention of people who entered the showroom to inspect automobiles.

The circumstances under which the experiment was undertaken were not favorable. The automobile dealer selected handled a car running too low in price range to attract the purchasers of airplanes, given the existing scale of prices of airplanes in 1929 and 1930. Furthermore, the experiment was undertaken at an unfavorable time of year both for the automobile business and for the airplane business.

The fact that the airplane dealer in this case was primarily interested in fixed-base operations may have had some bearing on his desire to have an airplane on display before numerous persons. In any event the case reflects the existing uncertainty and lack of definite policies on the part of dealers and distributors as to the procedure to be used in selling planes to individual users.

From the long run standpoint this case, like others, suggests interesting questions as to the future relationships of the automobile and airplane industries.² Will these industries prove complementary or competitive? Interest in these questions was heightened by the entrance of certain automobile companies into the airplane manufacturing field in 1929 and 1930.³

June, 1930

M. P. M.

² Compare cases of the Fokker Aircraft Corporation of America (A), p. 80. Curtiss-Wright Sales Corporation, p. 85; American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (A), p. 127; Hayden Aviation Company, p. 132; Parker-Weston Company (A), p. 141; and Stinson Aircraft Corporation (C), p. 272.

³ See also case of the Holworthy Aviation Company, pp. 71-75.

9. FOKKER AIRCRAFT CORPORATION OF AMERICA (A)¹

MANUFACTURER—AIRPLANES

BUSINESS ORGANIZATION—*Affiliation of Airplane and Automobile Manufacturers.* An airplane manufacturer which had become affiliated with a large automobile manufacturer through the purchase of a 40% stock interest by the latter, believed this affiliation had given it many advantages, among which were: amplification of facilities for research; quantity purchasing of materials; opportunity to benefit by the merchandising experience of the larger company; use of the export organization of the automobile company in building up foreign sales; facilities for extending time payments to purchasers of airplanes; and additional names of prospective purchasers secured from the other company's dealers.

(1930)

On May 29, 1929, the General Motors Corporation announced that it had obtained a 40% stock interest in the Fokker Aircraft Corporation of America, and that henceforth the two companies would be considered as affiliates. Among the questions suggested by this development was that of how the operations of the Fokker Aircraft Corporation might benefit from the association with the General Motors Corporation. On the completion of the first year of this affiliation, an executive of the Fokker Aircraft Corporation stated that the company had gained several important advantages.

The Fokker Aircraft Corporation had been established in 1923, and by 1930 it had become one of the leaders in the aviation industry. In 1929, sales had been in excess of \$4,000,000. At its factories at Wheeling, West Virginia, and at Hasbrouck Heights and Passaic, New Jersey, the company manufactured eight distinct models of cabin monoplanes.

Because of the large capacity and consequent high price of Fokker planes, the company's market was confined principally to three types of buyers: the United States Army and Navy; regularly scheduled air transport lines carrying mail, passengers,

¹ See also Fokker Aircraft Corporation of America (B), p. 288.

express, or any combination of the three; and those purchasers which the company designated as commercial users and which included fixed-base operators conducting aerial taxi services, and business firms operating planes for the transportation of executives, salesmen, or merchandise, or for sales promotion. Private individuals using planes for pleasure were an important market for some types of Fokker planes, but their purchases constituted only a small part of total sales. During 1929, the company made 78% of sales to transport lines, commercial users, and private individuals, and the remaining 22%, to the United States Army and Navy.

Executives of the Fokker Aircraft Corporation were permitted to make whatever use seemed advisable of the resources of the General Motors Corporation and to consult with executives of that company. While there was no officer or department specifically charged with performing liaison work, in order to effect an interrelation between the two companies three vice-presidents of the General Motors Corporation, Mr. F. J. Fisher, Mr. C. F. Kettering, and Mr. C. E. Wilson, were placed on the board of directors of the Fokker Aircraft Corporation; Mr. Wilson and Mr. Kettering were placed upon the executive committee; Mr. W. T. Whalen, formerly vice-president and general manager of the General Motors Export Corporation, was made vice-president and general manager of the Fokker Aircraft Corporation; and Capt. E. V. Rickenbacker, formerly an executive in the sales department of the Cadillac Motor Car Company, a General Motors Corporation subsidiary, was made vice-president in charge of sales of the Fokker Aircraft Corporation. Executives of the Fokker Aircraft Corporation stated that cooperation from the General Motors Corporation had been of material help in all the company's activities.

In the first place, the General Motors Research Corporation, organized to conduct research into the automotive field for the benefit of the manufacturers comprising the General Motors Corporation, was headed by Mr. C. F. Kettering who, executives of the Fokker Aircraft Corporation stated, was a leading aeronautical engineer. Although as yet the General Motors Research Corporation had no separate aeronautical research department, the corporation had been of value in investigating some of the technical problems met by the Fokker Aircraft Corporation,

and the latter company's facilities for research had been greatly amplified through the connection.

In the purchase of materials, as well, the Fokker Aircraft Corporation had found that its affiliation with the General Motors Corporation was of value. Investigation had shown that, with the total factory cost of a Fokker plane at 100% as a base, from 25% to 35% of the cost was represented in the engine, 25% in the materials and labor for the wings, 15% in the materials and labor for the steel tubing, 3% in the materials and labor for the fabric covering, and the remaining 22% to 32% in the material and labor cost applicable to other parts of the plane; of these costs, material constituted the greater part. Although the quantity purchasing power of the General Motors Corporation could not be used in the purchase of engines, plywood for the wings, steel tubing, and linen, since the other subsidiaries made no use of such materials, the Fokker Aircraft Corporation was able to include its orders with those of the General Motors Corporation in the purchase of the remaining materials, and thus to obtain substantial reductions in the prices quoted. An executive of the company stated that it was this factor which was chiefly responsible for the company's being able to announce in 1930 a reduction of 15% to 27% in the prices of its various models of planes.

Another important advantage of the Fokker Aircraft Corporation's affiliation was its opportunity to improve its competitive position and increase its sales by taking advantage of the marketing experience of the larger company. Executives of the Fokker Aircraft Corporation believed that many of the methods used in selling automobiles were applicable to the sale of airplanes and that most manufacturers of airplanes had little knowledge of proper marketing methods. The success of the separation of the pleasure automobile and the truck salesforces of the General Motors Corporation had been a factor in the Fokker Aircraft Corporation's decision to retain a segregated organization.

Furthermore, through its affiliation, the Fokker Aircraft Corporation became eligible to make use of the elaborate export organization of the General Motors Corporation and its subsidiaries in building up sales and securing market information in foreign countries. The General Motors Export Corporation and other export subsidiaries of the General Motors Corporation maintained branch sales offices in practically all countries in the world and

were familiar with the problems involved in developing an export business in the automotive field.

Again, the Fokker Aircraft Corporation was able to make use of the General Motors Acceptance Corporation, which handled the installment sales of General Motors products, in extending time payment terms to purchasers of airplanes. Executives of the Fokker Aircraft Corporation believed that this was an important advantage, since many independent installment financing companies had hesitated to enter the aviation field, and those which had usually charged high rates. Through the General Motors Acceptance Corporation, the Fokker Aircraft Corporation, it was stated, had been able to offer materially lower terms to installment purchasers than had any of its competitors.

Moreover, the widespread organization of independent dealers in the products of the General Motors Corporation gave the Fokker Aircraft Corporation a large number of contact points from which it could gather the names of prospective purchasers of airplanes. Immediately after the affiliation was announced, the General Motors Corporation had requested its automobile dealers to be on the alert for all types of prospective purchasers of planes. The automobile salesman of each dealer also attempted to make plane sales; if it became apparent that a prospective purchaser was seriously interested, the automobile salesman arranged for a demonstration flight in a plane sent from the headquarters of the nearest Fokker salesman. On completed sales, automobile dealers were granted a commission of 5%. This plan had been successful, in the company's opinion, because of the fact that many automobile salesmen had had flying experience and combined enthusiasm for aviation with selling ability.

Finally, executives of the Fokker Aircraft Corporation stated that, should the company decide to manufacture a light plane suitable for private use and retailing at a comparatively low price, the distributing system for such a plane was already in existence, and little need be done actually to put it into operation. General Motors Corporation automobile dealers had evinced an interest in aviation, and many of them already were engaged in aeronautical activities of some type. With this background of experience, and with the entrance of other General Motors Corporation automobile dealers into the aeronautical field, the Fokker Aircraft Corporation need only appoint them as Fokker dealers, and the

distributing system for light planes would be effected. Executives of the General Motors Corporation were expected to be in sympathy with this development, since it was believed that the entrance of automobile dealers into aviation would increase their opportunities for profit not only through the sale of planes and aeronautical services, but also through larger sales of automobiles from the resulting publicity. Automobile dealers were to be encouraged to form subsidiary companies for aeronautical operations in order to lessen the risk of insolvency in case air activities were unprofitable.

COMMENTARY: Three facts stand out in this case:

(1) Even for airplanes of the large sizes and high prices made by this company, 78% of sales in 1929 were made to civilians; this high proportion indicates the major importance, for at least one prominent aircraft manufacturer, to which the civilian market for airplanes had attained.

(2) The General Motors Corporation, one of the nation's largest business enterprises, obviously had been convinced of the permanence of air transportation.²

(3) There had been no precipitate move toward consolidating the salesforces and distributive systems of the two corporations.³

The initial benefits from the affiliation were sought in connection with purchasing, production, sales financing, exporting, and, probably most important, research into technical and marketing operations. This program gave promise of ultimate success in the effective pooling of efforts, without risking disturbance of the marketing policies of either company by making premature changes based on untenable analogies between automobiles and airplanes.

June, 1930

C. I. G.

² The Ford Motor Company already had evidenced a similar conviction by engaging directly in the manufacture, sale, and advertising both of airplanes and of air transportation in general. See also the case of the Stinson Aircraft Corporation (C), p. 272.

³ See also case of the Stinson Aircraft Corporation (C), p. 272.

IV. DISTRIBUTION CHANNELS

10. CURTISS-WRIGHT SALES CORPORATION

SALES SUBSIDIARY—AIRPLANES AND AIRPLANE ENGINES

DISTRIBUTION CHANNELS—*Methods of Increasing Effectiveness of Distribution.*

One of the first problems to which a newly-formed sales subsidiary for a number of merged airplane manufacturers gave its attention was the need for securing greater economy and effectiveness of distributive policies than had been obtained by the formerly separate companies. The chief decisions made for this purpose were to augment and strengthen the system of fixed-base operators previously used, by seeking automobile sales firms as distributors and dealers wherever conditions warranted; to require that each distributor carry only the products of the merged companies; and to make possession of adequate capital and sales ability conditions of appointment of distributors.

SALES ORGANIZATION—*Creation of Sales Subsidiary to Market Products of Merged Companies.* When production facilities were seen to have outrun demand, and the distribution methods of its manufacturing subsidiaries were seen to require strengthening, a prominent holding company in the aviation industry decided to create as a subsidiary a sales corporation, to which were given wide powers over the distribution, sales promotion, and sales planning activities of the airplane manufacturing companies. The latter, however, retained control of price policies, and continued to transfer title in their products directly to outside buyers.

(1929)

In the fall of 1929, the Curtiss-Wright Corporation, a consolidation of airplane and airplane engine manufacturers, created the Curtiss-Wright Sales Corporation for the purposes of reorganizing and supervising the sales and distributing systems of the five airplane manufacturers included in the combination. It was expected that the Curtiss-Wright Sales Corporation would supersede the individual salesforces of the five airplane manufacturers. After the formation of this company, therefore, its first efforts were directed to study of the distribution methods of those five manufacturing companies. Among the suggested means of improving distribution methods was the appointment of automobile wholesalers and retailers, in numerous instances, to replace

fixed-base aircraft operators who previously had been used as channels of distribution.

The Curtiss-Wright Corporation had been formed in June, 1929, and by the end of the summer it included numerous important companies in the aviation industry and had close affiliations with others. The direct subsidiaries of the Curtiss-Wright Corporation were:

Wright Aeronautical Corporation, manufacturing an extensive line of aircraft engines covering nearly every important horsepower class. The engines manufactured by the company were the Wright Gipsy, a 90 horsepower air-cooled in-line engine; the Whirlwind J-6 line, comprising fixed radial air-cooled engines of 165, 225, and 300 horsepower; the Cyclone, a fixed radial air-cooled engine of 525 horsepower; and the Typhoon, a water-cooled marine engine developing 500 horsepower.

Curtiss Aeroplane and Motor Company, Incorporated, producing both airplanes and engines. In addition to planes manufactured for the United States Army and Navy, the company produced the Curtiss Condor, an 18-passenger twin-motored transport plane; the Curtiss Commercial Falcon, a single-place open biplane; the Curtiss O1B Falcon, a 2-place open biplane; and the Curtiss Fledgling, a 2-place open training biplane. The engines manufactured by the company were the water-cooled Curtiss D-12, of 435 horsepower; the water-cooled Conqueror, of 600 horsepower; the air-cooled Challenger, a 6 cylinder fixed radial engine of 170 horsepower; and the air-cooled Chieftain, a 12 cylinder fixed-radial engine of 600 horsepower.

Curtiss-Robertson Airplane Manufacturing Company, manufacturing the Curtiss Robin, a 3-place cabin monoplane, and the Curtiss-Robertson Thrush A, a 6-place cabin monoplane. This company in turn purchased the *Moth Aircraft Corporation*, manufacturing the Moth, a low-priced 2-place open biplane of English design.

Travel Air Company, probably the largest manufacturer of commercial airplanes in the United States in 1929. This company's line included 8 models of 3-place open biplanes, a 4-place cabin monoplane, and 2 models of 6-place cabin monoplanes.

Keystone Aircraft Corporation, manufacturing a 3-place open biplane; the Keystone Pathfinder, a 12-place tri-motored transport plane; the Keystone Patrician, a 22-place tri-motored transport

plane; the Keystone-Loening Commuter, a 4-place cabin amphibian; and the Keystone-Loening Air Yacht, an 8-place cabin amphibian.

Curtiss-Caproni Corporation, organized to manufacture airplanes and seaplanes of Italian design, but not yet in commercial production in 1929.

Curtiss Flying Service, Incorporated, renamed at the end of the summer of 1929 the Curtiss-Wright Flying Service, Incorporated, operated approximately 40 sales and service branches throughout the United States. This company sold and serviced airplanes and engines; sold airplane and airport equipment and accessories; conducted flying schools; and offered taxi, mapping, and aerial photography services.

Other companies included in the Curtiss-Wright Corporation were the Curtiss Aeroplane Export Corporation; the New York Air Terminals and the New York and Suburban Airlines, Incorporated, each owning and operating an airport; and the Curtiss Airports Corporation, which planned eventually to purchase more than a dozen airports throughout the United States.

Transport lines affiliated with the Curtiss-Wright Corporation were National Air Transport, Incorporated, operating the New York—Chicago and the Chicago—Kansas City—Wichita—Tulsa—Fort Worth government mail contract lines, with supplementary express service; Transcontinental Air Transport operating a transcontinental passenger service; and the Pitcairn Aviation Company, operating the New York—Baltimore—Washington—Richmond—Atlanta—Jacksonville—Tampa—Miami government mail contract.

The Curtiss-Wright Corporation also had substantial interests in companies carrying on financial operations in the aviation industry, including the National Aviation Corporation, engaged in financing, underwriting, and trading in all types of securities; the Aviation Corporation of California, organized to buy and sell securities of aviation companies; North American Aviation, Incorporated, and the Aviation Securities Corporation of New England, aviation investment trusts of the management type; the Aviation Securities Corporation, an investment trust; the Aviation Credit Corporation, engaged in financing the sales of aircraft, motors, and accessories to all purchasers on a time basis; Sperry Gyroscope, Incorporated, manufacturers of aeronautical

equipment, and Aviation Exploration, Incorporated, organized to send expeditions to various parts of the world to institute air transport, training, and sales and service operations.

Although many of the companies named above were largely or wholly owned by the Curtiss-Wright Corporation or its subsidiaries, it was announced that the manufacturing and operating activities of the subsidiary and affiliated companies would be kept separate.

In the years prior to 1926, the principal production of airplanes had been for military and naval use for the United States Government. Beginning with 1926, however, more planes were produced for commercial and private use than for government use, as is shown by the following figures:

PRODUCTION OF AIRPLANES IN THE UNITED STATES

	1926	1927	1928
Commercial and Private.....	858*	1,565†	3,542†
Military and Naval.....	328*	397*	1,219†
Total.....	1,186	1,962	4,761

* United States Bureau of the Census.

† Aircraft Yearbook, 1928, 1929.

Following the widely heralded long-distance flights of Lindbergh and others in 1927, public interest in aviation had increased substantially. The problem faced by aircraft manufacturers during the year 1928 had been one of production rather than of marketing; aircraft were sold readily as fast as they could be produced. At the close of 1928, sales of commercial planes during 1929 were estimated at more than 10,000. In preparation for the 1929 season, therefore, plants were expanded, new models were developed, and several additional manufacturers of aircraft entered the field.

When, in 1928 and especially in 1929, aircraft manufacturers were intent on building up a nation-wide marketing organization, established fixed-base operators were eagerly sought as distributors and dealers. These operators, who conducted flying schools and offered aerial taxi, photography, and crop-dusting services, appeared to be the logical outlets for planes. They were interested in and familiar with aviation and airplanes. Because of their

locations at airports and their regular airplane activities, these operators presumably came into contact with those of the general public who were interested in aviation and who were, therefore, potential purchasers of planes. Such operators also had training, service, demonstration, and storage facilities. Consequently, by the summer of 1929, nearly all the 500 to 1,000 fixed-base operators in the United States were airplane distributors or dealers. There were comparatively few plane distributors or dealers of other types. Some manufacturers, however, had announced plans for marketing their planes through automobile distributors and dealers, some distributed through companies engaged exclusively in the sale of airplanes, and a few had obtained the services of roving pilots who toured the country in search of customers for their airplanes. Fixed-base operators, nevertheless, outnumbered by far all these other agencies as distributors and dealers of airplanes.

The typical plane distributor was located at an airport which he might own or which might be the property of a municipality or of another company. He owned or rented a hangar which provided space for offices, plane storage, and repairs, and he employed a small office force, a few mechanics, and one or more pilots who also acted as salesmen. He sometimes sold only one make of plane, but usually he held a franchise for the sale of several makes. The distributor usually carried on such additional activities as a flying school, taxi service, and the sale of accessories. He also provided service both for engines and for planes. The size of his territory might vary widely. The independent dealer was, in general, similar to the distributor, except that he sold only at retail and operated on a smaller scale.

A manufacturer usually granted a distributor a discount of 25% from the list price of the plane, and the distributor in turn granted the dealer a discount of 15%. On sales direct to users, the manufacturer usually allowed the purchaser a discount of 15% from list on planes in regular production; on special order work the price was fixed, in conference with the purchaser, on the basis of costs.

Because few manufacturers produced a full line of airplanes covering all models and prices, distributors and dealers typically did not confine their efforts to a single make of plane, although they seldom carried directly competing makes. There had been

little effort by manufacturers to prevent distributors from carrying noncompeting makes of airplane.

While these developments had been taking place, the number of airports and flying fields throughout the United States had increased rapidly. By the summer of 1929, if an individual desired a ride in an airplane, he could go to the nearest airport and there find at least one company which carried passengers for hire. In the vicinity of most large cities, furthermore, regularly scheduled transport lines operated from at least one airport.

Contrary to the forecasts which had been made in 1928 and early in 1929 regarding sales of airplanes to civilian buyers, by the summer of 1929 it became apparent that the immediate civilian market for aircraft had been greatly overestimated. Sales of aircraft had failed to keep pace with production, and inventories of planes at factories were piling up in spite of the efforts of manufacturers to increase their sales by appointing additional dealers. It was at this time that the distribution of aircraft to the civilian market became the focus of the industry's attention, and it was at this time that the Curtiss-Wright Corporation decided to form the Curtiss-Wright Sales Corporation.

For each of the Curtiss-Wright airplane manufacturing subsidiaries the new sales company was given the power to appoint distributors in new territories; to cancel the franchises of ineffective distributors and dealers and to appoint new ones to replace them; to aid distributors in building up dealer organizations; to direct the selling methods of distributors and dealers; to recommend changes in products to meet the demands of purchasers; and to make annual forecasts of sales for each manufacturer in the Curtiss-Wright Corporation as a basis for scheduling production. The Curtiss-Wright Sales Corporation was not to take title to airplanes; its expenses would be defrayed by an assessment from each plane manufacturer based on his sales in dollars for the previous year.

The Curtiss-Wright Sales Corporation also was to supervise the pricing and sale of airplanes to large fleet owners, consulting with each manufacturer as to prices for special equipment before a price was quoted to a customer. When the Curtiss-Wright Sales Corporation and the manufacturer had agreed on a price, an executive of the Curtiss-Wright Sales Corporation would

submit the quotation and undertake to complete the transaction. No change in the discount policies of the various manufacturers was contemplated, either in the sale of aircraft direct to users or in their sale through distributors and dealers.

Additional duties of the Curtiss-Wright Sales Corporation were: to undertake the coordination of production and distribution; to operate district sales offices; to carry on in general magazines an extensive national advertising campaign designed to promote the use of airplanes for pleasure, for the transportation of business executives and salesmen, and for advertising and sales promotion; to compile lists of prospective purchasers of airplanes for the use of distributors and dealers; and to carry on a direct mail advertising campaign addressed to prospective purchasers of planes on the letterheads of individual distributors and dealers.

The main office of the Curtiss-Wright Sales Corporation was located in New York.¹ Five sales districts were established, each under the supervision of a district sales manager and each, in the company's opinion, representing approximately one-fifth of the potential market for the sale of aircraft. District 1 included Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, the District of Columbia, Virginia, and West Virginia; District 2 included North Carolina, Tennessee, Arkansas, Louisiana, South Carolina, Georgia, Florida, Alabama, and Mississippi; District 3 included Kentucky, Ohio, Michigan, Indiana, Illinois, the eastern half of Missouri, and the southern third of Wisconsin; District 4 included Iowa, Nebraska, North Dakota, South Dakota, Minnesota, and the northern two-thirds of Wisconsin; and District 5 comprised the rest of the United States, including the western half of Missouri, Texas, Oklahoma, Kansas, New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, Nevada, California, Oregon, and Washington.

One of the first tasks to which the Curtiss-Wright Sales Corporation directed its attention was that of strengthening the distribution policies of the Curtiss-Wright subsidiaries manufacturing airplanes. As a preliminary step, the principal markets to be reached were classified roughly, as follows: (1) individuals, who used planes for pleasure or for private transportation; (2)

¹ Later removed to St. Louis, Missouri.

business companies, which used planes for advertising, sales promotion, and the transportation of executives, salesmen, and merchandise; (3) aerial service companies, or fixed-base operators, using planes for crop dusting, aerial mapping and photography, flying school, taxi, and sight-seeing services; (4) transport lines, which used planes for the transportation of passengers, mail, and express over fixed routes on a regular schedule; and (5) the United States Federal and State governments, and foreign governments, which used planes for military operations, coast and geodetic survey, and forest-fire patrol. The types of planes used by the members of any one of these groups varied widely, however, according to individual needs, with the result that it was difficult to define each market in terms of airplane and engine types.

The line of airplanes manufactured by the Curtiss-Wright Corporation's subsidiaries was believed to meet every current type of demand. The Moth plane, at a list price of \$4,500,² was suitable for training, pleasure, light taxi, and light business service; the Curtiss Robin, retailing at prices ranging from \$4,000 to \$7,500, according to the make and power of engine, filled the same needs where a low-price cabin monoplane was desired; the Travel Air Line, ranging in price from \$5,575 to \$18,000, included planes for all purposes except the heaviest type of transport operations; Keystone amphibians, priced at \$16,800 and up, appealed to wealthy sportsmen and to transport line users operating routes partly or wholly over water; the Keystone Patrician and the Curtiss Condor were designed for large transport line operations; the Curtiss Commercial Falcon, and the O1B Falcon were designed to serve the market provided by transport lines carrying large quantities of mail; and the Curtiss Fledgling was for use in flying schools. In addition to the civilian markets thus served, Keystone and Curtiss planes were sold in substantial numbers to the United States and foreign governments for military and naval uses. Although the Curtiss-Wright Corporation's line of planes was extensive, there was no duplication of products, since there was a difference in price, motor, and performance among planes even of the same type.

Executives of the Curtiss-Wright Corporation expected that the principal future markets for aircraft probably would comprise

² Prices quoted were those in effect in second half of 1929.

individuals wishing to fly for pleasure purposes, and business firms needing airplanes. These potential users were aware, the company believed, of the rapid advances which had been made in aviation within recent years, but to most of them the use and functions of an airplane, beyond the spectacular, were unfamiliar, and they had not as yet come to regard a plane as an article of everyday utility.

To overcome this attitude, moreover, might be difficult; purchase of an airplane, even after desire for ownership had been aroused, was hedged about with many impediments. With regard to the operation of aircraft, for instance, the United States Department of Commerce had formulated comprehensive aircraft and pilot regulations,³ to which the various states were urged to make their regulations conform. Briefly, Federal aircraft regulations provided that all aircraft be licensed before engaging in the interstate transportation of passengers, mail, or express for hire. Aircraft engaged solely in pleasure or noncommercial operations could, but need not be, licensed; a licensed plane might be operated only by a licensed pilot. Violation of the air commerce regulations resulted in revocation of the plane license, and the operation of a plane whose license had been revoked made the owner liable to a fine of \$500.

It was highly desirable for the individual contemplating the purchase of a plane to obtain a pilot's license, although no one was restrained from purchasing a plane. Federal pilot regulations defined the requirements to be met by those seeking pilot's licenses of the various classifications, and the restrictions of each of the classifications. Department of Commerce inspectors visited airports periodically to examine candidates for licenses and to inspect aircraft for airworthiness; they also reported violations of Federal regulations to the Department of Commerce.

Commercial operations in unlicensed planes were forbidden in interstate commerce. Moreover, in September, 1929, 19 states required Federal licensing of all aircraft and pilots engaged in interstate operations; 9 required Federal licenses for aircraft and pilots engaged in commercial flying; 6 required either state or Federal licenses for all aircraft and pilots; 6 required state licenses

³ Cf. regulations of the Aeronautics Division, United States Department of Commerce.

for all aircraft and pilots; and 8 imposed no restrictions on intra-state operations.

The general requirements to be met in order to obtain United States Department of Commerce pilot's licenses, and the various classes thereof as outlined by the Curtiss-Wright Flying Service, were:

1. A medical certificate of physical fitness before a student is permitted to get his flying training.
2. A written examination covering knowledge of:
 - a. Nomenclature
 - b. Principles and theory of flight
 - c. Airplane rigging and testing
 - d. Engines, ignition, carburetion, instruments, operation
 - e. Aerology, meteorology, navigation
 - f. Air traffic rules, Department of Commerce regulations
3. Satisfactory completion of a series of flying tests in the presence of a Department of Commerce inspector.

LICENSES

STUDENT PILOT'S LICENSE: Issued to anyone who satisfactorily passes the physical examination prescribed by the Department of Commerce.

PRIVATE PILOT'S LICENSE: Issued to anyone who has flown 10 hours solo, and who has satisfactorily complied with the 3 general requirements of the Department of Commerce outlined above. This license does not allow the piloting of any plane for hire or reward. The minimum age required is 16 years.

INDUSTRIAL PILOT'S LICENSE: Issued to a pilot who has flown 50 hours solo and satisfactorily complied with the 3 general requirements outlined above. This license allows the pilot to carry merchandise on interstate communication, but there is no permission to carry passengers.

LIMITED COMMERCIAL LICENSE: This license, which has the same requirements as the Industrial License, permits a pilot to carry passengers on short hops around his own airdrome. It does not permit interstate flying.

TRANSPORT PILOT'S LICENSE: Issued to a pilot who has flown at least 200 hours solo, and who has complied with the 3 general requirements outlined above. This license permits the pilot to fly any licensed plane, for any commercial purpose whatsoever, in any state. This license may be secured by any physically fit war pilot who has flown the requisite number of hours, provided

that at least 5 hours' solo flying has been done in 60 days preceding the date of application for a license.

The Industrial, Limited Commercial, and Transport Licenses are limited to citizens of the United States, to aliens who have received their first naturalization papers, or to citizens of any country with whom the United States has reciprocal aeronautical relations. The minimum age requirement for all 3 is 18 years.

In the summer of 1929, there were between 500 and 1,000 flying schools in operation in the United States. Although the prices charged for the several courses varied widely, the following schedule, as announced by the Curtiss-Wright Flying Service, was said to be typical:

PRIVATE PILOT'S COURSE

Qualifying the student to obtain the government license to operate noncommercial airplanes. It includes the \$50 ground school course, flying instruction in specially designed training planes, 10 hours of dual control and 10 hours of supervised solo flying. Completed within 3 months.

Tuition \$600

COMMERCIAL PILOT'S COURSE

An intensive training for the government Limited Commercial License, enabling the pilot to carry passengers for hire, demonstrate and test planes, etc. It includes the course outlined above, advanced ground school and laboratory work, and 30 hours of additional dual and solo flying, aerobatics, cross-country flying in both open and cabin planes. Completed within 6 months.

Tuition \$1,300

TRANSPORT PILOT'S COURSE

An all-inclusive training for the Transport License, the highest government license, which qualifies the pilot for every kind of commercial flying. It includes the 2 above courses, additional ground school and laboratory work, instruction in many types of planes including tri-motor transports and amphibian planes, actual transport experience as auxiliary pilot on Curtiss controlled airlines, intensive training in night flying. A total of 200 hours' flying time. Completed within 18 months.

Tuition \$4,500

SEAPLANE PILOT'S COURSE

Given especially for those interested in flying seaplanes and amphibians, qualifying the pilot to obtain the government private license for seaplanes. A course designed particularly for the sportsman. It includes the \$50 Ground School Course and 20 hours of dual and solo work in all types of water equipment. Completed within 3 months.

Tuition \$1,000

Instead of qualifying as a pilot, an individual desiring to purchase an airplane might employ a licensed pilot. The salaries of pilots varied from \$4,000 to \$6,000 a year, and it sometimes was difficult to obtain their services.

Standard makes of 1- or 2-place open cockpit planes could be purchased for as low as \$2,000, but the average price of 1-, 2-, and 3-place open cockpit planes was approximately \$5,200, and the average price of cabin planes of from 2 to 6 places was approximately \$13,500. It was difficult to determine exact operating costs, but they usually were high, although, in comparing airplane operation costs per hour with those of automobiles, it was necessary to bear in mind that the airplane traveled from 90 to 120 miles per hour at cruising speed.⁴ An airplane and its engine required frequent servicing, and this was an important part of operating costs.

Although the cost and the time involved in learning to fly and the cost of purchasing and operating an airplane were generally conceded to be the most important factors in the restriction of the civilian market for aircraft, there was a third element, that of fear, which many executives in the aviation industry believed to be of primary importance in restricting sales; others, however, thought that fear was distinctly secondary to cost. To meet and overcome these obstacles, the Curtiss-Wright Sales Corporation recognized that a high degree of interest and selling ability on the part of airplane distributors and dealers was necessary.

Prior to the formation of the Curtiss-Wright Corporation, each of the airplane and airplane engine manufacturers involved had been developing its own distributing and servicing organization. The Curtiss Aeroplane and Motor Company, for instance, had been developing a nation-wide organization for sales and service through the units of its subsidiary, the Curtiss Flying Service. In September, 1929, approximately 40 units were in operation, with 85 independent companies serving as dealers under them.

⁴ Various estimates of airplane operating costs had appeared from time to time in aviation trade journals. It was stated that the expense of operating a 4-place cabin plane for approximately 220 hours over a period of 6 months had been slightly in excess of \$11,000, including insurance, depreciation, hangar storage, and pilot's salary. The expense of operating a 6-place cabin plane for 500 hours annually had been placed at over \$12,000, including a mechanic's salary, but not that of a pilot; the expense of operating this same type of plane for 1,000 hours annually was estimated at approximately \$20,000. It had been stated also that the cost of operating a 3-place open cockpit plane for 150 hours of flying was \$4,400, including insurance, depreciation, and storage, but not including the salary of a pilot.

The units of the Curtiss-Wright Flying Service carried on flying school, aerial taxi, and aerial photography operations, provided service for all makes of airplanes and airplane engines, and sold airplanes and accessories. Each unit served as a retail dealer in the territory adjacent to its base, and in addition acted as distributor for those retail dealers which it appointed in the outlying portions of its territory.

The several units of the Curtiss-Wright Flying Service and their dealers were the sole outlets and authorized service stations for Command-Aire, Cessna, Ireland, and Curtiss-Robertson planes and for the products of the Curtiss Aeroplane and Motor Company other than those sold to large fleet operators and to the United States government; in these cases, planes and engines usually were sold direct from the factory by company executives without the services of a middleman. All the manufacturers whose planes were sold by the Curtiss-Wright Flying Service either were units in the Curtiss-Wright Corporation or were independent of other mergers. The Keystone Aircraft Corporation and the Travel Air Company sold direct to large fleet operators and to the United States Government; to others they sold through independent distributors and dealers.

The manufacturers in the Curtiss-Wright Corporation, furthermore, carried on some advertising, principally in aviation trade journals. On the basis of inquiries resulting from advertising, they drew up lists of prospective purchasers, grouped them by territories, and sent them to distributors. Additional selling helps, such as booklets and pamphlets describing the plane were furnished to distributors and dealers.

Each of the airplane manufacturers employed several pilot-salesmen, who toured the United States and visited the various airports in an endeavor to stimulate interest in the plane. The greater part of this effort, however, was directed at prospective distributors and dealers; pilot-salesmen rarely left the vicinity of the airport to find prospective purchasers of airplanes. At intervals varying from several weeks to several months, they also visited those distributors and dealers who already had obtained franchises in order to advise them on selling methods or to urge them to appoint additional dealers. Sales to governments and operators of large fleets usually were made directly by company sales executives.

Aircraft engines required frequent inspection and minor adjustments in order to assure safe flying. Barring accident, an airplane itself needed servicing less frequently than did the engine, but it was desirable that both be inspected at frequent intervals. A majority of airplane distributors and dealers were equipped to give at least minor service to planes, and they usually carried a stock of those spare parts which often required replacement.

In general, repair equipment adequate for the complete overhaul of one make of airplane sufficed for the complete overhaul of another make, although this did not apply if the planes were constructed of different materials. Spare parts usually were not interchangeable. In the repair of an engine, however, an investment of several thousand dollars in special tools was necessary, and each make of engine required a different set of special tools.

The Wright Aeronautical Corporation sold its products to governments for installation in military and other aircraft, and to airplane manufacturers. A majority of its sales had been to buyers outside the Curtiss-Wright merger. All sales had been made direct from the factory, but the company was considering offering replacement engines through spare parts distributors. The company had been building up a system of spare parts distributors and service stations throughout the United States, carrying Wright spare parts, and equipped to provide Wright engine service. Spare parts distributors performed service on other makes of engines, but they were not allowed to accept a franchise from other engine manufacturers. The service stations purchased spare parts from the territorial distributors and performed light service on Wright engines. Most of the service stations sold planes, operated flying schools, and provided aerial taxi service.

Since each of the units in the Curtiss-Wright Corporation had built up its own sales and service organization, the Curtiss-Wright Sales Corporation found that there was considerable duplication of facilities. At one large municipal airport, for instance, each of the three principal sales and service organizations held a franchise from one or more of the manufacturers included in the Curtiss-Wright Corporation. A unit of the Curtiss-Wright Flying Service sold and serviced products of the Curtiss-Robertson Airplane Manufacturing Company and the Curtiss Aeroplane

and Motor Company; an independent company held a distributor's and dealer's franchise for Moth airplanes; and a second independent company was a Wright spare parts distributor and service station, and also a distributor and dealer for Travel Air and Keystone planes. In addition, all these companies competed in offering taxi and flying school services, and all were equipped to give complete service on airplanes. In September, 1929, it was estimated that approximately 300 distributors and dealers were selling the products of the Curtiss-Wright Corporation throughout the United States.

In the opinion of executives, it was undesirable for the Curtiss-Wright Corporation to continue this type of selling organization. In the first place, there was much duplication of selling effort and of equipment. Again, there was little coordination between production and distribution; sales had been overestimated, and overproduction had resulted. Some of the plane manufacturers in the Curtiss-Wright Corporation, moreover, had attempted to obtain the services of additional distributors and dealers as a method of disposing of surplus stocks of planes; these attempts not infrequently had resulted in the appointment of companies with limited capital, insufficient experience in merchandising, and ineffective personnel.

A dealer of this type apparently attempted to impress himself on the general public as a hero in order to increase the demand for his services, and he often expatiated on the difficulty of flying in order to enhance the impression of heroism and to justify the high prices he charged for training courses and for taxi services. Such an attitude was not conducive to the wide sale of planes. Moreover, the fixed-base operator's primary interest lay in the operation of his own plane. If a prospective purchaser appeared at the airport and was able to divert the dealer's attention from piloting planes or supervising operations, the dealer might attempt to sell him a plane. Few dealers, however, tried actively to interest prospective purchasers beyond those few who visited the airport.

Executives of the Curtiss-Wright Sales Corporation, therefore, soon questioned the effectiveness of fixed-base operators as airplane distributors or dealers. Some operators had been successful in promoting the sale of planes, but a majority had not; and even those who had sold a satisfactory number of planes, it was thought,

might have sold more had they exerted the maximum of selling effort. Many fixed-base operators, moreover, apparently had accepted franchises for the sole purpose of obtaining new equipment at the dealer's discount, thereafter taking little or no interest in the resale of planes. This situation had been less common among distributors than among dealers.

In the opinion of the Curtiss-Wright Sales Corporation the fundamental objection to fixed-base operators as aircraft distributors and dealers was that they had not appeared suited by temperament to carry on aircraft sales activities. Nearly all these operators were pilots, and one of the principal reasons for their engaging in fixed-base operations was their love of flying. The sale of planes required persistent solicitation of a relatively limited market. To induce individuals who previously had not been interested in aviation to learn to fly and to purchase a plane, skillful salesmanship was necessary. Moreover, the principal potential retail market for planes appeared to be, first, among wealthy sportsmen and, second, among business companies, which would use aircraft for the transportation of salesmen and executives, for the shipment of merchandise, and for advertising and sales promotion. Many fixed-base operators and their pilots lacked the ability to talk convincingly to such prospects, and the operators were averse to employing well qualified salesmen because of the expense that would be incurred. Again, the usual type of fixed-base operator, interested principally in operations, preferred spending his time at the flying field to calling on prospective purchasers. For the most part, the purchasers of aerial services took the initiative in making contact with the operator; it rarely was necessary for him to leave the flying field either to obtain students for a training course or to sell aerial taxi service.

In short, a majority of fixed-base operators had had little experience with personal solicitation beyond the confines of the airport, and they were not eager to initiate it. Under such circumstances, the Curtiss-Wright Sales Corporation was convinced that the two largest potential markets for the sale of aircraft at retail, that among wealthy sportsmen and that among business companies, were being neglected.

Executives of the Curtiss-Wright Sales Corporation believed that the use of distributors and dealers of expensive automobiles as distributors and dealers of airplanes might prove to be the

solution of this problem. In their opinion, automobile distributors and dealers had gained a wealth of merchandising experience in the operation of their business. Their salesmen were likely to create a favorable impression on business executives and wealthy sportsmen; and, a factor of the greatest importance, the distributor and dealer of high-price automobiles already was in contact with a wealthy clientele. It was true that the retail sale of a plane required demonstration flights, but there were fixed-base operators near every important center of population with whom arrangements could be made for demonstration flights. These fixed-base operators also would be in a position to store planes and to provide any necessary servicing facilities. If the automobile distributor or dealer desired to maintain these facilities himself, he could readily arrange for space on an airport as a base of operations.

Executives of the Curtiss-Wright Sales Corporation decided, therefore, to solicit primarily the services of distributors of high-price automobiles as distributors of planes in those territories which were open, accepting fixed-base operators only if they had outstanding qualifications. Existing distributors of Curtiss-Wright planes were urged to obtain the services of dealers in expensive automobiles as dealers of planes.

In pursuance of this policy, the Curtiss-Wright Sales Corporation defined the general requirements which an automobile distributor must meet in order to obtain the distributorship for Curtiss-Wright planes. He must hold the franchise for the sale of an automobile whose average price exceeded \$4,000; he must provide adequate demonstration and servicing facilities; he must employ at least one salesman exclusively for the sale of planes; and he must have capital resources adequate to support a business which might be run at a loss for one or two years. The executives of the Curtiss-Wright Sales Corporation believed this last requirement to be of especial importance, since it was probable that few plane distributors would clear a profit during their first year in business. It was strongly recommended that the automobile distributor form a separate company to carry on aviation activities, with a capitalization of not less than \$200,000. In this way, any objections likely to be voiced by automobile manufacturers would be forestalled; and, if aviation activities turned out to be unprofitable, the company's automobile business would not be imperiled.

In addition to deciding to negotiate with automobile wholesalers and retailers on the foregoing basis, the Curtiss-Wright Sales Corporation outlined the principles which it would follow in revising and consolidating the distribution methods of the affiliated companies. These principles were as follows:

Distributors, as a rule, were to be located in the large centers of population, and to sell to dealers in the metropolitan trading areas of their home cities; distributors also might sell planes at retail within the city itself. The distributor's territory was to be exclusive, and he would sell all the planes in the Curtiss-Wright line unless the Curtiss-Wright Sales Corporation believed that his capital was inadequate, in which event, the Curtiss-Wright line of planes might be divided between two or more distributors. Distributors were not allowed to sell the planes of other manufacturers, whether or not they competed directly with those of the Curtiss-Wright Corporation.

Distributors should carry in stock as demonstrators at least one model of each make of plane which they sold at retail, and also a stock of new planes in the more rapidly selling models sufficient to provide immediate delivery to dealers and to retail customers. If a unit of the Curtiss-Wright Flying Service was located in the immediate vicinity, the distributor might rent a demonstrating plane from it; nevertheless, he must still carry planes for immediate delivery. Distributors also were permitted to engage in the sale of such aviation accessories as plane instruments, propellers, and flying clothes. They must provide equipment adequate for light repairs to engines and planes, and they must carry a stock of spare parts sufficient to provide for the needs of the territory. This requirement was flexible, however, where the distributor operated in the vicinity of a unit of the Curtiss-Wright Flying Service, since that unit was prepared to give complete engine and plane service. Similarly, if he operated in the vicinity of a Wright spare parts distributor or service station, which was prepared to give the necessary engine service, the distributor's obligations were to be modified accordingly. In other instances, the distributor might arrange for repair service with a company in no way connected with the Curtiss-Wright Corporation. In all cases, customers desiring complete engine or plane overhaul would be referred to the nearest unit of the

Curtiss-Wright Flying Service or to the nearest Wright spare parts distributor.

A distributor was expected to have capital resources of from \$100,000 to \$200,000. If he engaged in the retail sale of planes, he was to maintain a retail organization corresponding to that of a dealer. In addition, the distributor should employ a territorial salesman to visit dealers to supervise their selling methods, and to give them merchandising counsel. The distributor would exercise closer supervision over his territory than did the Curtiss-Wright Sales Corporation, since his territory was relatively restricted in size; consequently he was permitted to appoint dealers, with the approval of the Curtiss-Wright Sales Corporation, and to decide whether or not they should be granted exclusive franchises for the sale of certain makes of planes within the territory. The Curtiss-Wright Sales Corporation, however, did not determine the discount which distributors should grant to dealers but did recommend the discount.

Because of the large number of units of the Curtiss-Wright Flying Service located throughout the United States, in many instances it would not be necessary for the distributor to maintain hangar space at a flying field. If the distributor could arrange for a nearby Curtiss-Wright Flying Service unit to provide demonstration flights and to give service, he might be permitted to operate with no other equipment than an office and warehouse facilities for the planes he carried for immediate delivery. Executives of the Curtiss-Wright Sales Corporation recommended but did not require that such a distributor, when he also sold at retail, maintain a downtown showroom for the display of airplanes. Provided the distributor possessed flying field facilities, he was discouraged from carrying on fixed-base operations. A final requirement of the distributor was that he must find new prospects for the purchase of airplanes within his territory. If the distributor sold at retail as well, he might sell planes to these prospects or turn them over to dealers, as he saw fit; if he sold only to dealers, he turned the prospects over to them. If the distributor's salesman closed the sale of a plane, and if the distributor engaged only in wholesale operations, delivery was to be made through a dealer, and the dealer would receive his full discount; such instances, however, were expected to be rare.

The average distributor, operating within a radius of 50 to 150 miles from his home city, was expected to appoint a maximum of 10 dealers; executives of the Curtiss-Wright Sales Corporation believed that a greater concentration of dealers within a territory would deprive them all of the opportunity to carry on profitable operations. In many instances, it was expected that distributors would appoint fewer dealers.

Dealers were to be allowed to sell any or all planes of the Curtiss-Wright Corporation's line at the discretion of the distributor; in most cases, they would sell the complete line. Dealers were not allowed to sell planes of any other company. They were expected to have capital resources of at least \$20,000, and to provide demonstration and servicing facilities similar to those of distributors. A dealer was allowed to arrange with another company for demonstrations and servicing if it operated within a short distance of the dealer's office; as a result, the dealer was not required to have flying field facilities. A downtown display room was considered desirable but not essential. The distributor would submit to the dealer the lists of prospective purchasers of airplanes sent out by the Curtiss-Wright Sales Corporation; the dealer was required to maintain one salesman for each 1,000 names sent to him. The lists were to be sent out periodically, and the dealer was expected to reduce each list within 3 months so that it included only persons actually contemplating the purchase of a plane. After the reduction of the list, he might curtail his salesforce, but it must still include one salesman for each 1,000 names.

Distributors and dealers were granted the right to appoint so-called contact dealers in communities in which no Curtiss-Wright distributor or dealer operated. Previous experience indicated that contact dealers usually were located in small cities or towns; their sole function was to furnish to the distributor or dealer who had appointed them the names of prospective purchasers of planes. The contact dealer made no actual selling effort. On sales originated in this way, the contact dealer was granted a commission of 5%. In nearly all instances, contact dealers were automobile dealers.

As an additional source of income for the company's plane distributors and dealers, it was provided that commissions be paid to them by the Curtiss-Wright Flying Service for the sale

of its services. If the distributor or dealer was successful in selling aerial service to an individual, the Curtiss-Wright Flying Service was notified. The distributor or dealer was granted a commission of 20% on the \$50 ground school course; a commission of 10% on the flying school courses, the prices of which varied from \$600 to \$4,500; a commission of 10% on taxi or charter transportation, the average price of which was approximately \$50 an hour; and a commission of 20% on oblique and 10% on mosaic aerial photography, the prices of which were not fixed. The Curtiss-Wright Flying Service would not be allowed to sell planes to such individuals, whether they had purchased aerial taxi work and photography or had taken a training course; this right was reserved strictly for the dealer or distributor who had made the original contact.

The Curtiss-Wright Flying Service was to concentrate on aerial taxi, aerial photography, flying school, and similar operations; it was to sell planes at retail only to flying school students who had been obtained through its own efforts. For this purpose, the Curtiss-Wright Flying Service was granted dealerships for each of its units direct from the Curtiss-Wright Sales Corporation at a discount of 20%; the Curtiss-Wright Flying Service had no connection with the distributors and dealers of the Curtiss-Wright Sales Corporation. The Curtiss-Wright Flying Service was permitted to retain its plane and engine servicing activities since it already possessed the requisite equipment and since this equipment was necessary for fixed-base operations in any event, but each of its 85 dealers either was transferred to the Curtiss-Wright Sales Corporation or was eliminated. Furthermore, if the Curtiss-Wright Flying Service performed such functions, nearby distributors and dealers would be able to operate with lower expenditures for equipment.

For the time being, at least, the Wright Aeronautical Corporation was to retain full control of its sales and service policies. Since that company sold most of its nongovernment products to airplane manufacturers, a number of whom were outside the merger, its marketing needs seemed quite different from those of the merged airplane manufacturers.

To make sure that its policies would be carried into effect as fully as possible, and to assist in the distribution of Curtiss-Wright airplanes, each of the Curtiss-Wright Sales Corporation's district

offices was to supervise in some detail the selling methods of distributors and dealers. The district sales manager was responsible primarily for keeping constantly in touch with the distributors in his district for the purpose both of supervising their operations and of suggesting effective sales procedure. The assistant district sales managers, of whom there might be one or more, according to the size of the territory, were to visit dealers in order to instruct them in salesmanship and to supervise their selling methods; such visits would, however, be relatively infrequent, and the Curtiss-Wright Sales Corporation expected to maintain contacts with its dealers principally through its distributors.

Sales quotas for each of the sales districts were approximately the same. Sales quotas were calculated by taking into consideration such factors as the number of licensed pilots in each district, the number of aircraft operating in each district, and past sales of Curtiss-Wright planes; in other words, they were based on the estimated degree to which each district was interested in aeronautics rather than on the district's area or population.

The Curtiss-Wright Sales Corporation also undertook to determine annual sales quotas for each of its distributors based upon such considerations as the size and population of the territory, and the number of airports and the number of licensed pilots therein. If the distributor had been in business the previous year, to his sales of that year was added a percentage of increase based on the percentage of increase in the number of licensed pilots in his territory during that year. The total sales in planes were then subdivided by manufacturers and types according to the corresponding subdivision of sales in the previous year. If the distributor had not been in business, his sales quota was arrived at in a conference with officials of the Curtiss-Wright Sales Corporation. The distributor was required to contract for the delivery of his quota over the year, and a small deposit on each plane contracted for was required as an evidence of good faith. Distributors determined the probable sales of dealers, and required similar contracts and deposits from them; executives of the Curtiss-Wright Sales Corporation believed that a dealer should be given a minimum quota of five planes and should be able to sell 10 planes annually. On sales of 10 planes a year at an average price of \$8,000 each the dealer's gross margin of 15% was computed to be \$12,000.

Shortly after the Curtiss-Wright Sales Corporation started putting its policies into effect, an example of a typical distributor's territory was that surrounding Philadelphia. This territory included the southern half of New Jersey, the southeastern quarter of Pennsylvania, and the whole of Delaware; its population was over 4,500,000. Cities having populations of over 100,000 were Wilmington, Camden, Trenton, Philadelphia, Reading, and Allentown; cities of from 50,000 to 100,000 were Atlantic City, Harrisburg, Chester, Bethlehem, Lancaster, and York. Dealers, each selling the full line of Curtiss-Wright planes, were established at Red Bank, Trenton, Camden, Wilmington, Bethlehem, Allentown, Lehigh, Easton, Reading, and Harrisburg. The territorial distributor stocked a full line of makes and models of Curtiss-Wright planes, but the stocks of dealers varied widely. The distributor also carried on flying school and aerial taxi operations, but only half the dealers were engaged in aerial operations and were located on flying fields. Each of the nonoperating dealers was an automobile dealer, maintaining a subsidiary company or special salesmen for the sale of airplanes, and maintaining agreements with operators for demonstrations and service. Those subsidiary companies which had been formed were the result of the objection of several automobile manufacturers to the dealers' division of selling effort between automobiles and airplanes.

COMMENTARY: Numerous aspects of this case press for attention. Limits must be placed on the present discussion, however, and it is directed therefore mainly to three conspicuous issues: creation by the Curtiss-Wright Corporation of a centralized sales subsidiary, the Curtiss-Wright Sales Corporation; the extent and limitations of the powers given that company; and the selection of remedies for the unsatisfactory distributing results obtained by the airplane manufacturers included in the merger. For the purpose of this discussion it seems desirable to take up these issues in the reverse of their chronological sequence. The policies to be followed by the Curtiss-Wright Sales Corporation for improving the distribution of Curtiss-Wright airplanes, consequently, are first analyzed.

After surveying the distribution methods in use by the member airplane manufacturers, the Curtiss-Wright Sales Corporation concluded that the chief causes of the unsatisfactory results obtained were lack of merchandising ability and lack of interest in airplane sales on the part of the fixed-base operators who had been appointed as

distributors and dealers. Acting on this conclusion, the Curtiss-Wright Sales Corporation planned to seek other types of sales outlets, either to augment or replace the distributive agencies already established.

To some extent, the company's conclusions with respect to the distributing organization were well founded. Fixed-base operators possessed in combination many of the characteristics of craftsmen, artists, and showmen. They were interested in the actual operation of aircraft. Moreover, customers for short pleasure flights and for the various charter services unquestionably were easier to find and to make sales to than were prospects for the purchase of aircraft. Both personal interest and availability of customers, therefore, favored attention to selling services at the expense of selling airplanes.

Lack of merchandising ability, while no doubt also present in many instances, was less conclusively shown; the distributors and dealers seemed to be fairly successful in disposing of the thing in which they were chiefly interested, namely, the services of airplanes. It is by no means certain that other types of sales outlets could be found which would contribute a higher net ability to sell airplanes. The fixed-base operators had intimate knowledge and experience in the use of airplanes. For them to learn to sell aircraft effectively might in fact be less difficult than it would be for persons lacking those qualities, but having wider merchandising experience, to master the art of flying and the necessary knowledge as to the technical aspects of airplanes. Perhaps, furthermore, during the initial marketing developments of the industry, men imbued with a high degree of sincere personal enthusiasm for flying were indispensable as salesmen. Confidence in aircraft had to be established in the minds of prospective buyers if sales were to be made. Men having this quality of enthusiasm had a solid foundation on which to develop the art of selling airplanes. It was entirely possible, and probably would have been well worth while, for the manufacturers to establish sales training schools for the distributors and dealers.⁵

The chief point to be made here, however, is not that fixed-base operators necessarily were the most suitable type of men to be selling airplanes, but rather that their capabilities as salesmen of planes could not be judged from their past performance, inasmuch as the manufacturers, by virtue of their discount schedules, had made it impossible for the distributors and dealers to devote themselves profitably to the selling of aircraft. The combined discounts to distributors and dealers did not exceed 25% of the retail prices of the airplanes. Although, unfortunately, reliable data on distribution costs are not available for the aircraft industry, it is safe to say that this margin was insufficient

⁵ See C. Dallas, Incorporated, p. 294.

to yield a reasonable net profit. A retailer of low-price automobiles, with sales of \$680,000 in 1929, reported a gross margin, after mark-downs and trade-in allowances, of 21.85% of net sales and a net profit of only 0.28%.⁶ Even with allowance for the much higher unit price of an airplane, it is difficult to see how an airplane retailer, facing an undeveloped market and a correspondingly high sales expense, could hope to operate profitably on discounts providing initial mark-ups of not over 25%, and in many instances, of only 15%.

This conclusion is borne out by reference to other distributing trades for which data are available. For instance in the retail jewelry trade, to which in some respects the retailing of aircraft may be compared, the typical gross margin in 1927 was 40.9% of net sales and net profit was 1.3%. Department stores with sales of less than \$150,000 secured a typical gross margin of 28.9% in 1929, and incurred a net loss of 0.9%.⁷ In these instances, furthermore, the initial mark-ups were considerably higher than the final gross margins actually obtained. Instances can be found of retail trades with lower gross margins than those just cited, but such trades, as for instance groceries and drugs, enjoy established demand and low sales expense.

In the wholesale trades, typical gross margins have been shown to run from 11.3% of net sales, for groceries, to as high as 24.8% for automotive equipment and 40.3% for wall paper.⁸

These figures by no means represent all types of distributive agency, nor can they serve as standards for the aviation industry. Yet they show that the airplane industry was trying to obtain distribution at a cost lower than that found necessary in many well established businesses. It is not surprising that lack of interest in airplane sales was found to be prevalent, and it is apparent that permanent correction of this trouble was not to be found merely by securing different types of sales outlets. Rather, the Curtiss-Wright Sales Corporation should have given attention to the question of the operating costs and margin requirements of the established airplane distribution channels. The need of uniform accounting records among these channels is reiterated elsewhere in this volume and the Curtiss-Wright Sales Corporation could with advantage have urged the adoption of such records.⁹

The results thus obtained would have gone far in providing information needed to answer the question as to how soon it would be economical to separate the sale of airplanes from the sale of airplane services. Such a development was to be desired; a restaurant, for instance, does

⁶ Case of the Winston Company, in McNair and Gragg, *Problems in Retail Distribution*, McGraw-Hill Book Company, Inc., New York, 1930, pp. 136-137.

⁷ Harvard Bureau of Business Research, *Distribution Costs*, July, 1930.

⁸ Harvard Bureau of Business Research, op. cit.

⁹ See esp. cases of the Great Lakes Aircraft Corporation (A), p. 162; Fleet Aircraft, Inc. (C), p. 265; and Stinson Aircraft Corporation, (C), p. 272.

not usually sell unprepared foodstuffs, nor does a taxicab company undertake to sell automobiles. The conflict of interest in such cases is apparent. But fixed-base operators could not be expected to give up their service activities to devote themselves to selling planes, nor could able independent merchants willing to concentrate on plane sales be expected to spring up, until the sale of aircraft was made an economically sound venture.

Closely connected with the problem of adequate discounts was that of the desirability of continuing to use wholesale distributors; several airplane manufacturers have decided to sell directly to retail dealers, giving them the entire trade discount.¹⁰

In deciding to offer distribution franchises to automobile firms, the Curtiss-Wright Sales Corporation foresaw that automobile manufacturers were likely to oppose this policy, and the company consequently adopted requirements designed to minimize such opposition. The gist of the requirements was that to qualify for Curtiss-Wright franchises automobile firms must have ample capital available and preferably should organize separate companies to promote aircraft sales. These stipulations were likely to limit substantially the number of automobile firms appointed. On the whole, it can be inferred from other cases in this volume that conditions in both the automobile and aviation industries made highly improbable a widespread desire on the part of automobile firms to undertake the sale of airplanes.¹¹ The appointment of automobile sales agencies as so-called "contact dealers" for airplanes, however, was likely to prove of some value as a means of locating customers, but the commission of 5% allowed those dealers on sales to persons whom they had suggested was scarcely consistent with the low discounts allowed the firms which had to bear the expenses of completing the sales.

The conclusion has been emphasized above that solution of the Curtiss-Wright Sales Corporation distribution problem was largely dependent on effecting a sound trade discount schedule. The powers given the company, however, did not include control over the price policies of the airplane manufacturing companies in the merger, and this limitation was probably an important factor in the emphasis which the sales subsidiary gave to consideration of the types of distributors to use. This limitation of powers might well have been reconsidered. Another limitation was that the Curtiss-Wright Sales Corporation

¹⁰ See cases of the American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (B), p. 152; and Great Lakes Aircraft Corporation (A), p. 162.

¹¹ See cases of the Mulliner Motor Company, p. 76; Fokker Aircraft Corporation of America (A), p. 80; American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (A), p. 127; Hayden Aviation Company, p. 132; Parker-Weston Company (A), p. 141; and Stinson Aircraft Corporation (C), p. 272.

could not buy airplanes, but in connection with sales acted as an agency, the title on sales going directly to the distributors from the manufacturing companies. In these limitations there was risk of division of responsibility and consequent difficulty of rigorous executive control.

Aside from these limitations, the Curtiss-Wright Sales Corporation was given power to act as a centralized sales organization for the airplane manufacturers in the merger, with responsibility for sales distribution management, sales promotion and advertising, sales planning, and for recommending changes and adaption of products. The parent company acted wisely in not extending these powers to the sales policies of the Wright Aeronautical Corporation, since the latter had the difficult problem of maintaining a market among airplane manufacturers who were not in the merger and who consequently were in direct competition with the Curtiss-Wright airplane manufacturers. The Curtiss-Wright Sales Corporation could not with good grace or effect have undertaken to supervise the sale of Curtiss-Wright airplanes in competition with other plane manufacturers and, at the same time, have sought to sell Wright motors to those manufacturers. Sale of Wright motors, therefore, was best kept segregated from the sale of Curtiss-Wright airplanes. Probably these considerations applied also, though perhaps with less force, to the motor sales of the Curtiss Airplane and Motor Company. The same principle of avoiding competition with customers justified the restrictions put on the sale of airplanes by the Curtiss-Wright Flying Service.

The question whether creation of the sales subsidiary was the most effective method available to the Curtiss-Wright Corporation for dealing with the marketing problems of its airplane manufacturing companies cannot be answered conclusively in the absence of information as to alternative plans. On general grounds, however, the question may be raised as to whether establishment of one central organization, to accomplish the tasks outlined for the Curtiss-Wright Sales Corporation, was preferable to continuance of the several separate sales organizations of the member companies. Some commonly recognized advantages of a central organization are: simplification of sales efforts and personnel, with resultant economies; adoption of uniform sales policies based on the best experience available; ability to employ highly competent executives; and the holding of a broader perspective and more rational attitude toward the problems of any one unit. In the particular instance of the Curtiss-Wright Corporation there was another possible advantage in that a sufficiently full line was provided to make it unnecessary for the company's distributors and dealers to carry the planes of other manufacturers in order to be in a position to achieve a reasonably large sales volume.

On the other hand, a centralized sales organization may be said to involve: the risks of an inflexible and bureaucratic attitude; discriminatory treatment of one or more of the unit companies; failure to keep in sufficiently close touch with the detailed operations of each company; failure to promote and benefit from the individuality of each product; and such division of responsibilities that interest lags both in the sales office and in the factories.

To gain the economies of centralization, community of interest on the part of the unit companies is essential. In the present case, the airplane manufacturing companies all had the same general type of product, and, together, served the entire market for aircraft. The interests of the companies varied somewhat between the different segments of the aircraft market, but this variation was not sufficient to put insuperable difficulties in the way of the Curtiss-Wright Sales Corporation.

The Curtiss-Wright Corporation proposed to have all Curtiss-Wright airplanes, so far as they were to pass through distribution channels rather than directly to users, sold through the same distributing firms, except when those firms did not appear to be financially able to carry the full line. This plan should have made possible some net saving in salesforce expense, since fewer salesmen probably would need to be employed than under the former, decentralized plan where each of the five manufacturers had his own salesmen and his own distributing organization. However, it was completely unlikely that the five combined salesforces could be reduced to anything like one-fifth their former size, since the same salesmen almost certainly would not be able to sell effectively the five lines or even a major part of them.

It was no doubt advantageous to the Curtiss-Wright Corporation to have several lines of planes to offer to distributors and dealers, inasmuch as those firms in any event often found it necessary to sell more than one line in order to secure a reasonable sales volume. The planes in the Curtiss-Wright lines were believed to be noncompetitive, so that the difficulties involved in offering competing products through the same distribution channels would not be encountered. As the industry developed, however, and sales of the various lines increased, it is likely that the company would find certain disadvantages in using the same distributors for all its products. Such a plan involves the danger of inadequate attention being given each product and, more important, tends to weaken the individuality of the products in consumers' eyes and to discourage aggressive marketing of each product on its own particular merits.¹²

¹² The General Motors Corporation affords an instance of a company which has avoided these risks by selling the products of its several divisions through separate outlets.

For direct sales to such segments of the market as government departments, transport lines and other fleet operators, and possibly business firms, segregated salesforces were needed,¹³ and the Curtiss-Wright Sales Corporation presumably could operate these salesforces with fewer men and more economically than could the individual companies in the aggregate.

With regard to the duties other than actual selling which the Curtiss-Wright Sales Corporation was to perform, it is probable that the centralized organization would operate economically and effectively, after the period of initial adjustment was passed through. These duties were to carry out sales promotion and advertising activities; to plan sales; and to recommend changes and adaptations of products. All these operations concerning market requirements were matters of urgent importance. Accurate measurement of demand as the basis for regulating production schedules and financial needs was likewise imperative. Probably the most important contributions of the Curtiss-Wright Sales Corporation would be along these lines.

The formation of the Curtiss-Wright merger is not in itself an issue in this case, and the reasons which led to the merger do not appear.

August, 1930

C. I. G.

¹³ See case of the Fokker Aircraft Corporation of America (B), p. 288.

II. AMERICAN AERONAUTICAL CORPORATION

MANUFACTURER—FLYING BOATS AND AMPHIBIANS

DISTRIBUTION CHANNELS—*Selection of Type of Dealer.* A company planning to manufacture flying boats and amphibian airplanes faced the problem of deciding whether retail distribution should be effected through airplane, motorboat, or automobile dealers. None of the three types appeared to meet all the company's requirements. Airplane dealers usually were more interested in the operation of airplanes than in their sale; motorboat dealers were unfamiliar with aeronautics; automobile dealers were allied with neither the motorboat nor the aviation industry; and none of the three had generally complete facilities for servicing amphibians.

DISTRIBUTION CHANNELS—*Direct Sales to Dealers.* A company planning to manufacture and sell flying boats and amphibian airplanes considered whether to sell the amphibians through a system of wholesale distributors reselling to dealers or whether to sell them directly to dealers. The flying boats, which would be sold largely to air transport lines, were to be sold by the company's executives directly to users. In the belief that distributors would be ineffective in performance of the wholesaler's functions, however, the company decided to sell its amphibian planes directly to dealers.

(1930)

The American Aeronautical Corporation was organized in 1929 to acquire the North American rights to manufacture and sell Savoia-Marchetti flying boats and amphibians, which had been developed by an Italian company. During 1929, because of inadequate manufacturing facilities, the American Aeronautical Corporation had manufactured few planes. These had been sold by company executives directly to users as the result of personal relationships and of answers to the company's advertisements in magazines read by wealthy people. The company expected to complete a large plant early in 1930, however, and therefore wished to formulate a definite policy for the distribution of its products. One of the company's problems was whether retail distribution should be effected through landplane dealers, motorboat dealers, or automobile dealers; another was whether to sell directly to retail dealers.

Savoia-Marchetti flying boats and amphibians enjoyed an excellent reputation in Europe, and were used extensively in the Italian army and navy and on many Italian air lines. They had been used in several notable long-distance flights, such as those of de Pinedo, undertaken in 1927, which included six continents and covered 60,000 miles, and of Ferrarin and Del Prete, who made a nonstop flight from Europe to South America in 1928.

The planes manufactured by the American Aeronautical Corporation were called American Savoia-Marchetti planes, and were of three types; a 3-place amphibian biplane, a 7-place amphibian biplane, and a 14-place monoplane flying boat. The 3-place amphibian, model S-56, was an open cockpit biplane with retractable landing gear and boat hull, capable of landing or taking off either on land or on water. It was equipped with the Kinner model K-5 100 horsepower fixed radial air-cooled motor, installed immediately beneath the upper wing and above the cockpit. With this engine, the model S-56 amphibian had a high speed of 100 miles per hour, a cruising speed of 90 miles per hour, a landing speed of 35 miles per hour, a climb of 600 feet per minute, and a ceiling of 10,000 feet. The list price at the factory was \$7,300. At this price, little or no profit accrued to the American Aeronautical Corporation, but the company believed that the initial low price would so stimulate demand for the plane that production economies eventually could be effected which would allow the company a substantial profit at the same price.

Model S-62 was a 7-place cabin plane furnished either as a flying boat or, with retractable landing gear, as an amphibian. Equipped with the Isotta-Fraschini 500 horsepower engine, it had a high speed of 134 miles per hour, a cruising speed of 118 miles per hour, a landing speed of 52 miles per hour, a climb of 750 feet per minute, and a ceiling of 13,800 feet. Its list price as a flying boat was \$27,500; as an amphibian, \$29,000.

Model S-55 was a 14-place twin-motored monoplane cabin flying boat with twin hulls suspended beneath the wing and with the motors mounted in tandem above the wing. The design, although unusual, had been in use for several years, and the company believed that experience had shown it to be thoroughly sound. The motors were either Isotta-Fraschini 500 horsepower

or Wright Cyclone 525 horsepower; with this equipment, the plane developed a high speed of 130 miles per hour, a cruising speed of 110 miles per hour, a landing speed of 59 miles per hour, a climb of 600 feet per minute, and had a ceiling of 11,000 feet. The list price was in excess of \$50,000.

It was expected that the flying boats, models S-62 and S-55, would be used, because of their large capacities and high prices, largely by air transport lines operating on routes partly or entirely over water. Because the market represented by air transport lines was clearly defined, because transport lines usually maintained their own servicing facilities, and because air transport line operators were believed to prefer to purchase planes directly from the manufacturer rather than through airplane distributors or dealers, the American Aeronautical Corporation planned to have its executives make sales direct to this market.

The marketing situation presented by the model S-56 amphibian, however, was different. Because of its limited carrying capacity and its comparatively low price, this model was expected to appeal to wealthy individuals for their private use, and it was to be sold to this market through retail dealers. The company believed that the best prospects for the purchase of this model were people who lived near rivers, lakes, or bays, and who possessed large incomes. The model was expected to appeal particularly to those wealthy persons who were interested in yachting or motorboating, either purely for pleasure or for commuting to and from work; although it was classed as an amphibian, model S-56 was primarily a flying boat. It was priced at less than most fast motorboats capable of only half its speed. Executives of the company believed further that the advantages of the model S-56 amphibian over the ordinary landplane were such that many prospective customers for landplanes might be induced to purchase the amphibian model S-56 instead, in spite of the fact that various models of landplanes of the same capacity could be purchased at substantially lower prices.

In the first place, the model S-56 amphibian was inherently stable, a feature which in the opinion of the company's executives was not characteristic of the usual type of landplane. Practically the entire weight of the model S-56 amphibian hung down from the wings; as a result, it always returned to normal flight when the controls were released, just as a pendulum returns to a vertical

position once the forces controlling it are released. Company executives stated that in the usual landplane the center of gravity was higher in relation to the wings, and that the landplane's tendency to return to normal flight was less strong than in the case of the model S-56 amphibian; as a result, more skill was required in maintaining safe flight. The company believed that a normal individual could learn to fly the model S-56 amphibian safely with no more than an hour's instruction.

Another outstanding advantage of the model S-56, common to all amphibians, was its ability to land either on water or on land. The company believed that a plane's ability to land and take off on water was of vital importance for safety in case of a forced landing. In most parts of the United States there were bodies of water suitable for landing and taking off a small plane at intervals of every few miles; whereas suitable land areas were much less common, even including the 1,500 flying fields and airports in operation late in 1929. Few planes could land on a field less than 150 feet long, even providing adjacent areas were free from such obstructions as trees and houses, and, if such obstructions were present, much larger landing areas were required. The necessary take-off run was considerably longer than the landing run; an airport with a landing and take-off runway less than 1,000 feet in length was judged of little value. The airport or landing field must also be level and free from holes and stumps to permit safe operation. It was true that the landing and take-off runs of flying boats were considerably longer than those of land planes, but most rivers, lakes, and harbors provided ample room.

The company's executives believed, moreover, that operations on water were safer than those on land. In taking off from the average airport, the operator of a landplane was forced to clear obstructions at the limit of the field. In case of engine failure immediately after the take-off, the pilot must either turn his plane when it was still at a low altitude, always a hazardous proceeding because of the danger of a side-slip and the limited distance in which to straighten the plane out, in order to make a forced landing at the airport, or he must take his chance of making a successful landing on an adjacent field. The size of the average body of water, on the other hand, would permit the pilot to gain enough altitude to make a safe turn in case of engine failure before

the landing area was left behind. Furthermore, the length of the take-off might be unlimited; by bringing the plane into the air gradually, the danger of a stall, or loss of flying speed because of a too rapid rate of climb, was eliminated.

In convenience as well, executives of the American Aeronautical Corporation believed that the amphibian was superior to the landplane. They stated that the 19 largest cities in the United States were located on bodies of water suitable for amphibian operations and that over 150 smaller cities were similarly situated. In all these cases, the business district of the city was within a short distance of the waterfront. It was common, moreover, for wealthy residents to live in suburbs facing on the water; consequently, the owner of an amphibian might commute between his home and office by plane, and, by landing on the water, be within a short distance of his destination. Airports for landplanes, on the other hand, because of the large area of land necessary for their operation, usually were located several miles from the business district of the city, as a rule in the poorer outskirts where land was cheap.

Finally, executives of the American Aeronautical Corporation stated that the model S-56 amphibian would prove to be more economical to own than a landplane because of the elimination of storage rentals. To operate a landplane, the owner either must have a private flying field or must rent storage space at an airport. Both methods were expensive; hangar storage for a small plane at most flying fields varied from \$3 a day to \$40 a month. The amphibian owner, however, could anchor his plane on the water or moor it to a dock. If thought desirable, a ramp and a hangar could be built for approximately twice the price of a small garage. Late in 1929, no other amphibian had been produced in the price class of model S-56; the amphibian of next lowest price, the company stated, retailed at more than double the price of model S-56.

In addition to the market represented by private individuals, the company anticipated that the model S-56 amphibian would appeal to fixed-base operators for use in their activities. It was believed that short flights in amphibian planes would return a substantial revenue to the operator, especially at beach resorts during warm weather, because of the lure of flight over the water. Furthermore, student training could advantageously be carried

on in an amphibian. Take-offs and landings were the most difficult operations for a student to master; an amphibian plane operating over the water could take off and land several times in a straight line while a landplane was doing the necessary circling over an airport to complete the cycle once.

The American Aeronautical Corporation had decided that its distributing outlets for the model S-56 amphibian should have proper facilities for demonstration and for service, should possess selling ability, and should have access to the type of consumer who might be induced to purchase the plane. To restrict its dealers to the sale of the model S-56 amphibian was not considered desirable because of the limited market; consequently the company had decided to select its dealers from among firms selling landplanes, motorboats, or automobiles.

Demonstration facilities, while important, were not difficult to establish, in the company's opinion. Each dealer would be required by contract to hire a full-time pilot and to purchase a plane for use in demonstration, but this would not make it necessary for the dealers' headquarters to be located on an airport or on the waterfront, since hangar space or mooring space could be obtained without difficulty for the storage of the plane.

Service facilities for making repairs to the plane and the carriage of an adequate stock of spare parts were regarded as highly important. Although engine service was fully as important as service to the plane itself, the company believed that this need not be considered in its particular problem, since the Kinner Airplane and Motor Company had established an extensive engine servicing system. The need for airplane service might arise as the result of wear and weathering, as the result of accidental breakage caused by poor take-offs or landings, or as the result of wholly external factors. Because there were few moving parts in an airplane body and because the effect of weather and salt water on the wooden hull and fabric wings was judged to be relatively unimportant, the need for plane service was expected to arise principally as a result of inexperienced handling. In cases of structural damage it was usually unsafe or impossible to fly a plane until repairs were made.

Service on the model S-56 amphibian was likely to be of two types, each of a specialized character. The bottom of the hull was of cedar planking, with sides of plywood, and in all respects

was similar to the hull of a wooden motorboat; in order properly to service the hull, a man familiar with this type of work must be obtained. The wings and the tail assembly were similar to those ordinarily used in airplanes; in order to obtain proper service for these parts, the services of a man familiar with airplane rigging were necessary. Proper servicing facilities would, then, include tools, equipment, and personnel for two entirely different types of work.

Dealers for the model S-56 amphibian would be granted the following discounts, based on their annual purchases of planes:

1st plane.....	18% off list
2nd plane.....	19% off list
3rd plane.....	20% off list
4th plane.....	20% off list plus additional 2% off list on the first and 1% on second, applied as additional 3% on the fourth plane.

The company planned to obtain a total of 35 retail outlets in the United States, each operating in an exclusive territory corresponding roughly with the trading area of the city in which it was located. It was believed that 35 retail outlets would cover as many important potential markets for the amphibian model S-56 as the company would be able to supply for some time to come. The importance and wealth of a city, not necessarily the size of its population, would be used as the basis for establishing retail outlets. Since not all parts of the United States were considered to be good markets for amphibian aircraft, the distributing system was not expected to cover the country. Retail outlets would be required to sign a contract calling for their acceptance of a definite number of planes during the year, based on the company's and the dealer's joint opinion of the probable annual sales within the territory, and they would be required to deposit the sum of \$250 for each ship ordered as evidence of good faith. Retail outlets would not be forced to accept delivery, since the American Aeronautical Corporation had no desire to force them into financial difficulties; upon cancellation, however, the deposit would be forfeited. Retail outlets would not be required to carry stocks of planes, other than a demonstration plane. They would be required to carry adequate stocks of plane

parts, however, although the size of this stock and the items to be carried were not stipulated. In the company's opinion, the few model S-56 amphibians in use, and the relatively slow growth in their use, would not justify the dealer's carrying spare parts in the near future. In case of need, spare plane parts could be shipped from the factory.

Of the three possible retail sales outlets considered, landplane dealers, automobile dealers, and motorboat dealers, each appeared to meet some of the company's requirements, but none of them met all. The dealer in landplanes nearly invariably was situated at an airport or possessed ground landing facilities of some kind. He presumably had built up an organization for the sale of airplanes, had pilots, mechanics, hangar space, repair facilities and spare parts, and planes to be used for demonstration and for taxi service. He was supposedly familiar with prospective purchasers of planes. He lacked knowledge of and facilities for the repair of the hull of an amphibian; however, this seemed not to be an important limitation, since anyone familiar with boat hulls could perform this service.

In the company's opinion, the usual plane dealer was more interested in the operation of airplanes than in their sale; the company stated that the experience of many landplane manufacturers had tended to bear this out. The usual type of plane dealer often confined his sales activities to those who visited the airport, and the American Aeronautical Corporation believed that the types of persons who visited airports were rarely good prospects for the purchase of planes.

With regard to motorboat dealers, many had been in business for a comparatively short time and so had not had the opportunity of demonstrating their ability over a period of years. Although the motorboat dealer would have adequate facilities for making repairs to amphibian hulls, he would have none for repairing the wing and tail assemblies. Moreover, he was usually unfamiliar with aviation and with the methods used in selling airplanes. In order to demonstrate and service planes, he must hire a pilot and an airplane rigger, or make arrangements with some plane dealer whereby such services would be provided. The motorboat dealer, nevertheless, had one decided advantage: he was identified with water operations and his activities had brought him into direct contact with the most promising prospective

purchasers of amphibians. He usually rented or owned a waterfront establishment for demonstration and servicing, and he often maintained a showroom in the city.

Of the three types of dealers, the American Aeronautical Corporation believed that perhaps the dealer in expensive automobiles was possessed of the most selling ability and the most valuable merchandising experience. People of sufficient means to engage in motorboating or yachting almost invariably owned expensive automobiles; as a result the automobile dealer must necessarily come into contact with at least some prospective purchasers of amphibian planes. The dealer in expensive automobiles, nevertheless, had certain disadvantages from the American Aeronautical Corporation's point of view. He was allied neither with the aviation nor with the motorboat industry, and prospects seeking to buy planes or motorboats on their own initiative might not think of him as a source. A single automobile dealer, moreover, could not be expected to have contact with all wealthy persons in his territory who were interested in water activities, since he probably would sell but one of many makes of expensive cars. Finally, the automobile dealer was not equipped to provide repair facilities either for the hull of the amphibian or for its wing and tail assembly.

In the spring of 1930, the American Aeronautical Corporation decided to undertake to have its amphibian model sold by airplane dealers rather than by retailers of automobiles or motorboats.

After this decision, the American Aeronautical Corporation's next problem was whether to sell directly to airplane retailers, or whether to sell through wholesale distributors.

Nearly all manufacturers of light airplanes marketed their products through wholesale distributors who resold to dealers. This method of distribution had been patterned after that used in the automobile industry. Airplane distributors usually were granted discounts ranging from 15% to 25%, and dealers were granted discounts of from 10% to 15%. Distributors served, as a rule, as territorial service stations and they usually carried a stock of planes for resale and a stock of spare parts. Dealers were appointed to sell planes at retail in outlying portions of the distributors' territories; the distributors usually made sales at retail in the territory immediately surrounding their base of operations. In the opinion of the company, it would

encounter little difficulty in obtaining the services of distributors. Airplane distributors or dealers were located in practically all the important potential markets for the amphibian plane; the company believed that obtaining their services would be largely a matter of salesmanship in inducing them to share its enthusiasm for the product.

Executives of the American Aeronautical Corporation were not convinced, however, of the merits of this method of distributing airplanes. In any case, they believed that it was not suited to the distribution of the company's amphibian plane. In the opinion of the officials, the use of distributors to resell to dealers would remove the company from direct contact with its dealers without any important compensating advantage. Delivery of planes from the factory could be made in a few weeks, and as a result local inventories, except for exhibition and demonstration flights, were deemed unnecessary. The limited number of dealers would enable the company executives to keep in close personal touch with each without the services of a distributor as a territorial administrator. The American Aeronautical Corporation, therefore, decided to sell its amphibian planes directly to dealers without using the services of distributors. It was expected that the sales manager and one or two salesmen would be able to obtain the services of dealers and to supervise their activities.

COMMENTARY: This company's steps in determination of its distribution policies were in logical sequence. Heeding the principle that sound marketing plans start from consideration of the buyer's viewpoint, the company first analyzed the reasons which might prompt buyers to purchase its products. Thus, it was able to classify potential customers into market segments, and to classify its products according to types of buyer. The next step was to choose the methods of distribution best suited for bringing each class of the company's products to the appropriate type or types of purchaser.

Two of the company's products were classifiable as industrial goods of a capital equipment type. These were the 7-place and 14-place flying boats. The chief market for such products was among transport line operators. Purchase of airplanes as basic capital equipment was a matter requiring much investigation and deliberation on the part of transport line operators. Sales to these operators could be made most effectively and economically by company executives or salesmen specially trained both as to the requirements of the operators and as to the

ability of the company to meet those requirements. The company's decision to sell directly to transport line operators, which was in accordance with the established practice of the industry, was valid.

The third product, the 3-place amphibian plane, was regarded as both a consumers' good and an industrial good, that is, the company expected the chief markets for this model to lie among purchasers for private use and among fixed-base operators such as those offering taxi services and flying instruction.

For retailing this product to consumers, the company considered the use of motorboat dealers, automobile dealers, and airplane dealers. On the whole, established airplane dealers not already selling planes of directly competing type were the most logical choice, because of their familiarity with aeronautics and their stake in the development of the airplane market. The company's amphibian could be landed at airports not having water facilities, and thus it presented no insuperable handling obstacles to airplane dealers of the established type. These dealers already had competent pilots for demonstration and instruction, and also, presumably, had enough basic mechanical knowledge to service such parts as did not need to be turned over to ship carpenters. Motor service already was cared for by the motor manufacturer.

To aid in providing adequate service facilities for the body of the plane, however, the American Aeronautical Corporation should have considered the adoption of two policies: consigning the more commonly needed replacement parts to dealers, and offering free factory courses for dealers' mechanics. Since the company planned to stock spare parts at its factory, it would have incurred little added expense by placing some of those stocks on consignment with its dealers. Training dealers' mechanics likewise would add little to factory costs and would go far in maintaining satisfactory relations with dealers and users of the company's airplanes.

As to trade discounts, it was likely that the company would have to reconsider the scale which had been adopted before the type of dealer to be used was selected. The discounts obviously should be closely adjusted to meet the requirements of the type of dealer receiving them. As soon as adequate data could be secured on dealers' expenses and probable sales, the required margins could be determined with an approach to accuracy and the company's trade discounts could be put on a sound basis.

The issue raised by the company's announced intention to retain, as forfeited, the deposits of dealers on planes ordered but not accepted is discussed elsewhere.¹

¹ See case of the Stinson Aircraft Corporation (B), p. 238.

The reasons for seeking 35 retail dealers are not clear. The advantages obtainable from a program of gradual, experimental coverage, as brought out in the commentary on the case of the Viking Flying Boat Company (A),² should have been considered in the present case.

Since in most instances airplane dealers were also fixed-base operators, the company's distribution policy provided amply for supplying the demand for amphibians to be used in fixed-base operations. The question must be raised, however, whether the company gave adequate attention to the problem of selling to business firms. If the company's estimates as to the wide usability of its amphibians were well-founded, then it should have provided some effective means of reaching business firms. Alternative methods open to the company were direct sale to business firms by company salesmen, and sale through dealers.

When it came to the question of deciding how best to reach the airplane dealers who were to retail the amphibians to consumers, the American Aeronautical Corporation avoided blind acceptance of the customary distributor-dealer method of selling light airplanes; the company's analysis of the drawbacks of that system gave evidence of executive foresight, and general reasoning as well as the experience of the industry indicates that the company's decision to sell directly to dealers was well taken.³ Specifically, this decision was based on the following considerations.

1. Because of the short time required to deliver airplanes from the factory, once volume production commenced, there was no need to have distributors perform the wholesaler's storage function.

2. If they were to develop their local retail areas adequately, distributors could not be relied on to do such effective work in appointing and assisting retailers in other areas as could the company's own salesforce.

3. Direct sale would permit substantially larger discounts to retailers; these discounts would be needed to secure the active cooperation of retailers, especially in view of the anticipated slow growth of consumer demand.

4. The company would benefit by having close contact with the ultimate market during the developmental stages of demand stimulation.

5. Dealers, cooperating actively with the company, should be able to develop the market among commercial and business users at least as well as could distributors.

On the other side, sales cost might be higher and credit risks greater, but these disadvantages were not clearly demonstrable nor of control-

² See pp. 58-60.

³ See cases of the Holworthy Aviation Company, p. 71; Fleet Aircraft, Inc. (B), p. 152; Great Lakes Aircraft Corporation (A), p. 162; and Stinson Aircraft Corporation (C), p. 272.

ling weight. The problem of rendering satisfactory plane service apparently could be met under the direct-to-dealer plan; motor service was provided by the motor manufacturer.

Aside from the specific questions relating to distribution policies, it may be pointed out that the company's optimism over the performance characteristics of its amphibian was based largely on the factors of stability of flight, ease of piloting, and multiplicity of landing facilities to use of which the amphibian was adapted. These factors are mainly technological and need not be discussed here; experience is the best test of their validity. Doubt must be expressed, however, as to whether the retail price of \$7,300 was low enough to give the company any substantial advantage in competing either with other types of planes, or with other types of transportation vehicles. In any event, low price was not in itself likely to create new demand in the near future.⁴

The company properly anticipated that development of its market would be slow; it did not let its product optimism carry over to an attitude of sales egotism, and it had, therefore, an enviable point of view from which to analyze its distribution problems.

May, 1930

C. I. G.

⁴ See cases of Fleet Aircraft, Inc. (C), p. 265, and Stinson Aircraft Corporation (C), p. 272.

12. FLEET AIRCRAFT, INC. (A)¹

MANUFACTURER—AIRPLANES

DISTRIBUTION CHANNELS—*Use of Automobile Dealers as Airplane Dealers.*

An airplane manufacturer selling directly to dealers wished to increase sales by increasing the number of retail outlets for its product. The president of the company believed that automobile dealers were logical outlets for airplanes, since the clientele of a dealer in expensive automobiles included many excellent prospects for the purchase of an airplane and since such dealers were familiar with the proper merchandising methods for selling an article of this type. Accordingly, he assigned a factory representative to approach automobile dealers in one section of the United States with the offer of a dealership, in order to determine the feasibility of adding such retail outlets to the company's organization.

(1930)

Early in 1930, after a reorganization of the company's distributing system, the president of Fleet Aircraft, Inc., desired to increase the number of retail outlets for the Fleet biplane in order to increase the company's opportunities of making sales. He regarded as worthy of consideration the efforts which several manufacturers of airplanes were making to obtain the services of automobile dealers as dealers in airplanes, and he decided that the company as well should attempt to obtain their services. Consequently, a factory representative was assigned to approach automobile dealers in one section of the United States with the offer of a Fleet dealership.

Fleet Aircraft, Inc., was a wholly-owned subsidiary of the Consolidated Aircraft Corporation which, in 1929, was the largest independent manufacturer of airplanes in the United States. The sales of the Consolidated Aircraft Corporation in 1929 exceeded \$5,000,000, and the company had returned a profit annually since 1924. The corporation and its subsidiaries manufactured patrol, observation, and training planes for the United States Army and Navy and the following three types of commercial planes: the Fleetster, a high-speed eight-place cabin monoplane,

¹ See also Fleet Aircraft, Inc. (B) and (C), pp. 152 and 265.

the Commodore, a 30-passenger twin-motored flying boat, and the Fleet.

The Fleet was a commercial adaptation of the company's Army and Navy training plane, which, the company stated, was the government standard training plane. It was a two-place open cockpit biplane, suited for flying school operations and for individual use for pleasure flying. The company stated that the Fleet was characterized by rugged construction and excellent performance and maneuverability, and that its adaptation from the United States government standard training plane was of great advertising value. Equipped with the Kinner 100 horsepower fixed-radial air-cooled engine, the Fleet had a high speed of 115 miles per hour; its cruising speed was 90-95 miles per hour; its landing speed was 37 miles per hour; its rate of climb at sea level was 730 feet per minute; and its ceiling was 13,000 feet. In 1929, 217 Fleet planes had been sold, of which 50 were purchased by individuals who used Fleet planes for pleasure flying, and the remainder by flying school operators who used the planes for flight training. At that time, the list price of the Fleet was \$4,985. The company stated that, at that price, the Fleet was the highest priced two-place open cockpit training plane on the market. According to the company's figures, the operating cost of the Fleet, including depreciation on the plane and engine based upon the list price of the completed unit, was \$6.55 per hour, or, at 85 miles per hour, 7.7 cents per mile.

During 1929, Fleet Aircraft, Inc., had sold its planes through distributors with exclusive territories who resold to dealers. Distributors received a discount of 20%, and they usually allowed dealers discounts varying between 12% and 15%. The distributor was the territorial administrator of the sale of Fleet planes, and the manufacturer aided him through five travelling factory representatives and through full-page space advertising in leading aeronautical trade journals.

In 1930, however, the company had decided to reorganize its channels of distribution. Use of distributors and exclusive territories was discontinued, and all outlets were designated as dealers. As such, they received a 25% discount from list price and were allowed to sell Fleet planes to any customer; the dealers were so located, however, that the normal field of selling effort of one would not encroach upon that of any other. Each dealer

was required to contract for a minimum number of three planes for delivery during the year in order to become eligible for the dealer's discount. A deposit of \$500 was required on each plane contracted for, as an evidence of good faith.

Early in 1930, the typical Fleet dealer was one of importance in local aeronautical activities. He was engaged in aerial taxi and flying school operations as well as in the sale of airplanes. His equipment included a hangar located at an airport or flying field, several planes for use in operations, and facilities for the repair and overhaul of planes. In a majority of cases, dealers also were in a position to furnish engine service of some kind, although the Kinner Airplane and Motor Company provided engine service in major aeronautical centers throughout the United States. Fleet dealers were required to maintain at least one Fleet plane as a demonstrator, but they were not required to carry stocks of planes for immediate delivery. Spare parts requirements were flexible, depending entirely upon the number of Fleet planes in use in the dealer's vicinity. Fleet dealers were not prohibited from selling competing planes.

Fleet Aircraft, Inc., planned to inaugurate a broad policy of sales promotion during 1930 in order to encourage the use of Fleet planes by individuals for pleasure flying. The advertising appropriation was increased to \$30,000, although it was still confined to aeronautical trade journals; the company planned to exhibit Fleet planes in at least three important aircraft shows; the price of the Fleet was reduced to \$3,985 in order to encourage purchase; and the company planned still further to encourage the general use of Fleet planes through price reductions by inducing its dealers to give a free flying course to each purchaser of a Fleet.

The president of Fleet Aircraft, Inc., believed that automobile dealers were logical outlets for airplanes. Uses of the two commodities were similar. He believed, furthermore, that the clientele of a dealer in expensive automobiles included excellent prospective purchasers of airplanes. Finally, there existed a strong presumption that the successful dealer of high-grade automobiles was familiar with the proper merchandising methods to be used in selling an article of that type.

The president was convinced, furthermore, that the automobile dealer was in a position to profit by entering the aviation field.

Personal experience had led the president of Fleet Aircraft, Inc., to believe that many automobile dealers regarded the airplane and the automobile as essentially similar, and that they were thoroughly in sympathy with the efforts of airplane manufacturers to obtain their services. The automobile dealer not only would profit directly by the sale of planes; but, by displaying an airplane in his showroom, he might attract a new group of prospective purchasers of automobiles. Furthermore, prospective purchasers of automobiles could be taken for flights in the plane used as a demonstrator in an effort to create goodwill.

In order to induce automobile dealers to accept a dealer's franchise for the sale of Fleet planes under the same terms as those granted to fixed-base operators, a factory representative of Fleet Aircraft, Inc., was delegated to visit dealers of high-grade automobiles in one section of the United States in order to determine the feasibility of expanding the company's retail outlets by that method. The factory representative explained the terms of the Fleet dealership to the automobile dealer, and recited the advantages which the automobile dealer could gain by accepting the franchise. The automobile dealer was required to purchase two planes immediately, one for demonstration, the other for permanent display in his automobile showroom. In order that the automobile dealer might effect an entrance into aircraft operations, and at the same time partly offset the cost of purchasing and maintaining a demonstration plane, it was strongly recommended that the dealer hire a local pilot and either set him up in a flying school business or take him into partnership in the automobile business for the same purpose. Hangar space and flying field privileges for such operations could be obtained in the vicinity of every large city.

COMMENTARY: Even if the typical dealer in automobiles had developed aggressive, effective sales methods for automobiles, there was no assurance that it would be good business policy from anyone's point of view for such a dealer to undertake the sale of airplanes. The display of airplanes as a means of promoting automobile sales was of uncertain value from the viewpoint of the automobile dealer; most of the pulling power of such a display was dependent on the novelty of the airplane and hence likely to be temporary. Reasons against the display and sale of airplanes by motor car dealers are brought out by the experience cited in the cases of the Mulliner Motor Company

and the Parker-Weston Company and discussed in the commentaries on those cases.² So far as the present case shows, furthermore, Fleet Aircraft, Inc., had made no first-hand investigation to support its belief that the typical dealer in high-grade automobiles was aggressive in seeking customers.

The decision of Fleet Aircraft, Inc., to attempt distribution through automobile retailers was based on an inadequate diagnosis of the marketing and financial needs of those dealers. Opposition to the plan was to be expected from both automobile manufacturers and dealers. It was wholly probable, therefore, that the company's decision later would be seriously qualified or even reversed.

June, 1930

C. I. G.

² See pp. 78 and 149.

13. HAYDEN AVIATION COMPANY¹

MANUFACTURER—AIRPLANES

DISTRIBUTION CHANNELS—*Use of Automobile Dealers as Airplane Dealers.*

An airplane manufacturer which was seeking to increase the number of its retail outlets in order to increase sales, experienced difficulty in obtaining the services of reliable dealers of the requisite ability and financial standing, because of competition among manufacturers for dealers' services and because of the reluctance of the company's distributors to appoint new dealers. Believing that automobile dealers were qualified to sell airplanes, since they had had extensive merchandising experience and had access to a group of wealthy people who were regarded as the best prospects for the purchase of planes, the company decided to seek the services of automobile dealers for selling its planes.

(1929)

The Hayden Aviation Company of Detroit, Michigan, was incorporated in 1928 to manufacture biplanes of the open cockpit type. Since its inception, the company had sought to increase the number of its retail outlets as rapidly as possible in the belief that sales would increase in the same measure. Late in 1929, however, the company had experienced a certain amount of difficulty in obtaining the services of reliable dealers for its planes. As a solution of this problem, the company contemplated securing the services of automobile dealers.

The Hayden Aviation Company manufactured a three-place open cockpit land biplane known as the "Wingsport."¹ It was powered, at the purchaser's option, either with the Curtiss OX-5 8 cylinder 90 horsepower water-cooled engine, the Kinner 100 horsepower fixed radial air-cooled engine, the Warner Scarab 110 horsepower fixed radial air-cooled engine, the Wright Whirlwind J-6 165 horsepower fixed radial air-cooled engine, or the Wright Whirlwind J-6 220 horsepower fixed radial air-cooled engine. The Wingsport's high speed with the Curtiss OX-5 was 120 miles per hour; its cruising speed was 100 miles per hour; its landing speed, 35 miles per hour; its climb, 800 feet per minute;

¹ Fictitious name.

and its ceiling, 20,000 feet. As the power of the motor used increased, the plane's performance increased. The list prices of the plane, equipped with the various motors, were:

With Curtiss OX-5.....	\$3,280
With Kinner.....	4,995
With Warner Scarab.....	5,895
With Wright 165 horsepower.....	6,670
With Wright 220 horsepower.....	7,570

The differences in price resulted from the varying costs of the different types of motors.

The Hayden Aviation Company believed that its product was one of exceptional merit and that it could out-perform any one of the numerous competing planes within its price class and with a motor of equal horsepower. Executives stated that performance had not been obtained at the sacrifice of stability, however; they believed that the Wingsport was one of the safest of all planes.

The market for Wingsport planes consisted principally of wealthy individuals, who used them for sport, and flying schools, which used planes for the training of student flyers. During 1929, the company sold approximately 60 planes; at the end of the year, an inventory of 60 planes was on hand at the factory. A majority of the planes sold by the Hayden Aviation Company in 1929 had been retained by the company's retail outlets either as demonstrators or for use in their flying school operations.

Distribution of Wingsport planes was effected through a system of wholesale distributors and retail dealers which, at the end of 1929, covered, roughly, the eastern half of the United States. The company sold its planes on sight draft to distributors who, in turn, sold the planes to dealers or to retail purchasers.

By the end of 1929, the company had obtained the services of 14 distributors; it did not know how many dealers were selling its planes. Each distributor operated in an exclusive territory, the size of the territory depending largely upon the population, the degree of "air-mindedness" which that population was thought to have attained, and the size and ability of the distributor. Thus, two distributors operated in different portions of New York state, while New Jersey and Pennsylvania each was covered by one distributor. For convenience, territories were divided by state or county lines.

In order to assure concentration on the sale of Wingsport planes, the Hayden Aviation Company refused its distributors permission to sell any other make of plane, whether competing or non-competing. The distributors, however, took part in such other aviation activities as the training of students, taxi service, and aerial photography. Each distributor either owned or was situated on an airport, maintained one or more airplanes for his aerial activities, and owned or rented a hangar. A distributor was selected on the basis of such personal qualifications as his business ability, of the equipment he possessed, and of his importance in the aviation activities of the territory.

Distributors of Wingsport planes were required to have a stock of at least two planes on hand at all times, one for demonstration and the other for resale. The distributor signed an annual contract with the Hayden Aviation Company to accept delivery of a specified number of planes based on what he estimated he could sell in that year. No deposit on the contract was required. Distributors provided facilities for making minor repairs to the bodies of Wingsport planes and carried a stock of such frequently needed parts as landing gear assemblies and tail skids. Major repairs were performed at the factory.

Distributors were granted a flat discount of 25% off the list price. The company specified that distributors grant dealers a discount of 15% off list on the first plane purchased and 20% off list on the second and subsequent planes purchased; upon the dealer's purchase of a second plane, the 20% discount became retroactive on the first plane. In addition to selling to dealers, distributors of Wingsport planes were allowed to sell at retail throughout their territories.

The Hayden Aviation Company's direct contact with its distributive system did not extend beyond the distributors; executives of the company believed that supervision and control of dealers was a function which should be performed by the distributor. Dealers usually were appointed by the distributor, and the company's approval of the dealer was not necessary. The company reserved the right to appoint dealers to guard against laxity on the part of the distributors, but such appointments were not made without first consulting the distributors, and company-appointed dealers purchased their planes through their territorial distributors. Appointments of dealers by the

company usually were the result of applications made directly to the company, and only a few such appointments had been made.

The Hayden Aviation Company's distributors were expected to select as dealers companies having flying field facilities, hangars, and facilities for making minor repairs to planes. The company believed that dealers should purchase one plane for demonstration but should draw on the distributor for planes for immediate delivery to purchasers. Dealers, in the company's opinion, should not be restricted to the sale of Wingsport planes and even should be permitted to sell planes competing directly with the Wingsport. The company thought further that dealers should not be required to sign contracts with a distributor calling for the acceptance of a specified number of planes during the year nor to agree to confine their activities to one section of the distributor's territory. The Hayden Aviation Company believed that competition between dealers within a distributor's territory would increase the aggressiveness of each.

The operation of the distributing system within a territory was left entirely to the distributor, however; although the company strongly recommended compliance with its policies in the appointment of dealers, attempts to enforce those policies were not made. It was the opinion of executives of the Hayden Aviation Company that the distributor's familiarity with conditions in his territory gave him a superior opportunity to judge the qualifications of dealers.

During 1929, the Hayden Aviation Company had engaged in an advertising campaign and had made use of company salesmen in an attempt to increase sales both by helping its existing dealers and distributors to sell and by appointing new distributors. The sum of \$25,000 had been expended for full-page space advertisements in aeronautical publications such as *Airway Age*, *Air Transportation*, and *Aviation*. In these advertisements, the performance characteristics of the Wingsport plane and the advantages of holding a dealer franchise for its sale had been stressed.

Three pilot-salesmen had been employed by the company, each of whom flew a Wingsport plane through various portions of the United States. These planes had the name "Wingsport" painted in large letters on the underside of the lower wing and carried the Wingsport trade-mark, about two feet in length, on

the fuselage. The pilot-salesmen attempted to visit all the airports and flying fields within their territories and to talk with the pilots, dealers, and any prospective purchasers of Wingsport planes who were present. If a company salesman sold a plane to a user, the order was turned over to the Wingsport dealer operating on the field, or, if the company had no dealer representation there, the order was turned over to the territorial distributor if there was one; if the sale occurred in an open territory, the company filled the order directly from the factory. In open territory, the pilot-salesmen also had attempted to obtain the services of fixed-base operators or other aeronautical companies as distributors of Wingsport planes.

The general purpose of this method of selling Wingsport planes was to obtain as intensive distribution as possible. Executives of the company believed that the greater the number of Wingsport planes within a given territory, the greater would be the number of prospective airplane purchasers who saw them in use and who thereby would be led to desire one. In order to put as large a number of Wingsport planes into use as possible, the company desired to obtain the services of a large number of dealers throughout the United States.

The company, however, had encountered serious difficulty in obtaining the services of distributors and dealers of the requisite ability and financial standing. It ascribed this to two causes. In the first place, there was keen competition among aircraft manufacturers for the services of responsible representatives. A majority of the men engaged in fixed-base operations, such as flying schools, taxi services, and aerial photography, for example, were interested primarily in the operation of aircraft; the financial condition of most of them was precarious, and their merchandising ability was thought to be doubtful. Competent management among other types of prospective dealers also was difficult to find. Coupled with this difficulty, the Hayden Aviation Company had found it difficult to induce its distributors to appoint dealers within their exclusive territories. The company's experience had been that distributors wished to reserve sales at retail within their territories for themselves.

As a solution of its difficulty in obtaining reliable dealers, the Hayden Aviation Company decided to turn to dealers in expensive automobiles as retail outlets for its planes. Such outlets would

represent an addition to, and would not supersede, existing dealers. The company believed that such automobile dealers were qualified to sell airplanes; they had had extensive merchandising experience and had access to a group of wealthy people, who were regarded as the best prospective purchasers of planes. The company was of the opinion, moreover, that the automobile dealer would gain outstanding advantages by accepting a franchise for the sale of aircraft. Not only would the sale of aircraft return him a profit, but also his connection with aviation would be of advertising value and might increase his sales of automobiles. For this reason, the Hayden Aviation Company anticipated little difficulty in inducing automobile dealers to accept franchises for the sale of Wingsport airplanes. The Hayden Aviation Company planned to retain its established methods of distribution and its discount schedules; the only change in its distributive system would be the addition of dealers who were not engaged primarily in aviation activities. Distributors would continue to be selected from among those companies engaged primarily in aviation activities.

In order effectively to perform his airplane dealer functions, the automobile dealer, in the company's opinion, should maintain a plane at the nearest flying field for demonstration purposes and should rent hangar space. The automobile dealer's salesman should be instructed in plane salesmanship; they should be able to tell prospective customers the advantages of owning an airplane and should be able to explain the general advantages of the Wingsport plane. For more technical explanations and for demonstration flights, the automobile dealer, in the company's opinion, should engage the services of an experienced pilot at the flying field; such a pilot could be employed on either a part-time or a full-time basis. The company had made no study of the cost of maintaining an airplane dealership or of the gross and net revenue the dealer might expect.

COMMENTARY: Two factors were jointly responsible for causing this company to reach a marketing decision which must be regarded as immature. First, by the end of 1929 the company had accumulated an inventory equal to its entire sales for the year; the cost and risks of carrying so large an inventory were urgent reasons for seeking some means of increasing sales rapidly. Second, the company's optimism as to the excellence of its product apparently had been translated into

optimism as to the product's marketability. This latter optimism amounted to what is often termed sales egotism; it led the company to seek intensive retail distribution on the assumption that the mere display of its airplanes would lead to their purchase. Such an inference, however, unless supported by analysis of marketing facts and tendencies, could not safely be made the basis for action.

Before attempting to add automobile dealers to its distributive system, the Hayden Aviation Company should have examined closely its existing sales policies. Without such an analysis, the company could have no assurance that the correct solution of its inventory predicament was to be found in adding to its sales outlets.

The main facts to be considered were as follows:

- (1) The company's planes were well suited to the needs of both private users and commercial operators, yet a majority of sales had been to the latter.
- (2) The company's distributors were prevented from carrying other makes of airplanes.
- (3) Its distributors were required to appoint and sell to dealers, who were permitted to carry other makes of planes, even those directly competing with Hayden planes.
- (4) Its distributors were expected to engage in airplane operation as well as airplane sales activities in order to secure a profit.
- (5) Discounts to distributors and dealers were substantially the same as those current in the industry, but the company had made no study of the actual margin requirements of distributors and dealers.
- (6) Distributors were granted exclusive territories, but dealers were not necessarily given similar protection.
- (7) The company was using a group of missionary salesmen to assist its distributors and dealers.
- (8) Distributors annually contracted for specified numbers of planes, but the company believed that distributors should not require similar commitments of dealers.

Much of the company's sales difficulty can be ascribed to the inconsistencies revealed by the above tabulation. First, the company placed on its distributors the responsibility for developing airplane sales in their territories, yet it did not permit them to carry a wide enough line of planes to justify them in pushing airplane sales actively. Rather, the energies of the distributors were turned for self-protection to other income-producing activities to a degree incompatible with effective promotion of airplane sales. If 100 Hayden planes were to be retailed annually at an average price of \$6,000, half, say, by dealers buying from distributors and half by distributors, each of the 14 distributors

on the average could secure a total gross margin of not more than \$8,000. From this he would have to meet all expenses chargeable to airplane sales, including rent, interest on capital, administrative and salesmen's salaries, advertising, insurance, and bad debt losses. Authentic data were lacking on the total of these expenses, but there would seem to be little ground for expecting that the resultant net profit would be large enough to stimulate aggressive marketing efforts by distributors. Permission to carry other makes of airplanes, however, would have aided in focusing distributors' attention on airplane sales and, since the distributors' entire attention in any event could not be devoted to the company's interest, this was better than having their attention divided between nonallied activities. The position of distributors would have been strengthened, furthermore, if they carried several makes of planes since that would enable them more fully to supply the needs of dealers. There was no clear reason for refusing to apply to distributors the same policy as to lines carried that the company suggested for dealers.

Another major inconsistency appeared in the company's granting of exclusive territories to distributors while it was suggesting nonexclusive rights for dealers. The assumption apparently was that the more dealers there were exhibiting Hayden airplanes the greater would the sales of those planes be. This assumption, however, overlooked the fact that merely seeing an airplane is no reason for buying it; surely at the time of this case sales efforts of a highly specialized kind were needed to convert onlookers into buyers. Without reasonable protection of territory, it is difficult to see why dealers would go far in incurring the expenses of such sales efforts. What efforts were made, moreover, were likely to take the form of price-cutting and other undesirable competitive practices.

Perhaps it was in recognition of this dealer reluctance that the company had commenced the use of missionary salesmen. So far as the function of these salesmen was to sell planes for the accounts of distributors and dealers, their employment was comparatively novel in the industry. Use of these salesmen was likely to prove beneficial both in sales assistance rendered and as a means of putting the Hayden Aviation Company in touch with the ultimate markets for its product. The effectiveness of the salesmen would be curtailed, however, by the weaknesses in the company's marketing program.

The net result of these conflicts in the company's marketing plan was that a majority of the sales of Hayden airplanes had been made to the market most easily sold—the commercial operators. Private buyers had been relatively neglected.

To reach the private-buyer market, the Hayden Aviation Company decided to attempt the appointment of automobile dealers, an attempt

beset by the many obstacles brought out in other cases and commentaries on the same point.²

The conclusion is reached that the Hayden Aviation Company should have delayed and perhaps foregone the decision to seek automobile dealers as outlets, and should instead have undertaken to strengthen its marketing policies and its existing distributive system, thereby making more fully effective the use of its missionary salesmen.

May, 1930

C. I. G.

² See cases of the Mulliner Motor Company, p. 76; Fokker Aircraft Corporation of America (A), p. 80; Curtiss-Wright Sales Corporation, p. 85; American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (A), p. 127; Parker-Weston Company (A), p. 141; and Stinson Aircraft Corporation (C), p. 272.

14. PARKER-WESTON COMPANY (A)¹

DISTRIBUTOR AND DEALER—AIRPLANES

DISTRIBUTION CHANNELS—*Use of Automobile Dealers as Airplane Dealers.*

A distributor of airplanes, believing that automobile dealers would prove a more effective type of retail outlet than fixed-base operators, induced a dealer in high-price automobiles to make a temporary, verbal agreement to accept a sub-dealership from the company and to display an airplane in his showroom. A few weeks after making this agreement, the automobile dealer wished to terminate the arrangement in order to provide space for a new shipment of cars. The distributor had a choice of three courses of action: to increase the dealer's commission on the sale of airplanes; to induce the manufacturer of the automobiles sold by the dealer to approve and recommend plane displays by its dealers; or to discontinue the agreement.

(1930)

Early in 1930, a few weeks after the Parker-Weston Company, a distributor and retailer of airplanes, had made a verbal agreement with the Ledwith Company¹ for the display of an airplane in the latter company's automobile showroom, the Ledwith Company received a shipment of new models of cars from its manufacturer. The Ledwith Company proposed to the Parker-Weston Company that the agreement be terminated and that the airplane be moved out of the showroom in order to make space for the new cars. The sales manager of the Parker-Weston Company was, however, reluctant to terminate the agreement. There were, apparently, three courses of action open to the company. The Parker-Weston Company might increase the Ledwith Company's commission on the sale of airplanes; the company might attempt to have the automobile manufacturer approve and recommend plane displays by its dealers and distributors; or the agreement might be discontinued without further controversy.

The Parker-Weston Company, located in a large city in the north central part of the United States, had been organized early in 1929 as an airplane distributor and dealer and an airplane and

¹ Fictitious name. See also Parker-Weston Company (B), p. 247.

airplane engine service station. At its inception, the company had obtained a distributor's franchise for the sale of Sky-King² airplanes within an exclusive territory comprising approximately 70,000 square miles. The territory included a population of several million and the average income was high. On the other hand, the terrain was generally mountainous and unsuitable for landing; of the 57 airports and landing fields in the territory, many were rough and unsafe; and the population had shown some hesitancy in taking up aviation.

In the course of its activities, the Parker-Weston Company had become convinced that the usual type of plane dealer, the fixed-base operator, was not the most effective type of retail outlet. In extending its dealer organization, therefore, the company had decided to approach the distributors and dealers of expensive automobiles in order to obtain their services as airplane dealers. The Ledwith Company had been the first organization of this character to be approached.

The Parker-Weston Company owned a large and modern brick, steel, and concrete hangar, which had been constructed at a cost in excess of \$75,000, bordering on the municipal airport of the company's home city. In addition to providing storage space for planes, spare parts, and accessories, the hangar provided office space, a large showroom, and space for complete overhaul service on planes and engines. Unlike most other aircraft dealers and distributors, the company carried on no taxi or school operations, but confined itself to the sale and servicing of airplanes, the servicing of airplane engines, and the sale of spare parts and accessories. The company's personnel consisted of the president, the sales manager, the maintenance manager, a salesman, several mechanics, and a few stenographers. Sales activities were carried on by the president, the sales manager, and the salesman.

The president of the company stated that the experience of automobile distributors and dealers had tended to show that the larger part of their profits was derived from servicing cars and from sales of accessories, gasoline, and oil rather than from the sale of automobiles. The Parker-Weston Company looked forward to such a situation in the aviation industry, and expected that the larger part of its future profits would be derived from its servicing activities and from the sale of accessories and spare

² Fictitious name.

parts. It believed that plane dealers should be the principal vendors of new planes at retail and that the distributor, while not neglecting its retail sales activities, should regard repair service as its major function and perform all repairs except those of a minor character.

In the opinion of the president, the Parker-Weston Company held two of the most valuable franchises in the aviation industry, that of the Denton Airplane and Manufacturing Company,³ manufacturers of Sky-King airplanes, and that of the Vollmer Motor Corporation,³ manufacturers of a well-known line of airplane engines.

The Sky-King line of airplanes included models ranging from small open-cockpit sport planes to eight-place cabin planes. Prices varied from \$4,000 to \$18,000 depending upon the engine and the model; the average price of Sky-King planes was approximately \$8,000. Nearly all Sky-King planes were furnished with Vollmer engines as standard equipment. The Denton Airplane and Manufacturing Company had met with a large measure of success in marketing its products; Sky-King planes were as well and favorably known as any others, and the company had attained an important place in the aviation industry.

The same was true of the Vollmer Motor Corporation. The several types of aircraft engines manufactured by the company covered several important horsepower classes, principally those used by private owners of airplanes, by fixed-base operators, and by air transport lines engaged in light transport operations. Vollmer engines were installed as original equipment in the planes of a large number of aircraft manufacturers, and the company occupied a prominent place in the manufacture of aircraft engines.

The franchise which the Parker-Weston Company had obtained from the Denton Airplane and Manufacturing Company gave it almost complete control of the distribution of Sky-King airplanes within its territory. The Parker-Weston Company was granted the right to appoint dealers and to supervise their sales activities without interference by the manufacturer. The president of the Parker-Weston Company believed that the usual franchise granted by airplane manufacturers was less broad, and

³ Fictitious name.

it was his opinion that the Denton Airplane and Manufacturing Company had recognized his company's ability and reliability in granting the franchise.

In return for these privileges, the Parker-Weston Company was required to contract annually to take delivery of a specified number of planes during the course of the year, the number to be determined by the probable annual sales within the territory as estimated by the distributor and the manufacturer. The company made a deposit of \$250 upon each plane, and paid for the planes by sight draft upon delivery. The Parker-Weston Company was required to maintain complete servicing facilities for Sky-King planes and to carry a stock of spare parts adequate to meet the probable needs of the territory. The company also agreed not to sell planes of other manufacturers which competed directly with the Sky-King line. A stock of six Sky-King planes of different models usually was carried. The Parker-Weston Company was granted a flat discount of 25% upon its purchases of planes from the Denton Airplane and Manufacturing Company. It granted its dealers, in turn, a flat discount of 15%.

The franchise from the Vollmer Motor Corporation designated the Parker-Weston Company as the exclusive "Vollmer Service Distributor" for its territory. As such, the Parker-Weston Company was to provide complete facilities for servicing Vollmer motors, and was to carry a complete stock of Vollmer spare parts. It also was required to employ a force of mechanics who were thoroughly familiar with Vollmer engines. The Parker-Weston Company was granted the right to sell Vollmer engines, for replacement purposes only, in its territory, and to appoint throughout its territory Vollmer service stations, which were expected to perform light overhaul and repair work on Vollmer engines. The Parker-Weston Company was granted a 40% discount on spare parts, and was required to grant a 25% discount to the dealers it appointed. On replacement engines, the company received a discount of 25%, and granted dealers a discount of 15%. The company was allowed to perform service on other than Vollmer engines, but it could not accept a franchise from other engine manufacturers.

By the end of 1929, the Parker-Weston Company carried an inventory including several Sky-King planes and \$15,000 in Vollmer spare parts. The sum of \$6,500 had been invested in

tools for engine repair, of which \$1,500 represented tools that could be used only on Vollmer engines.

Four Sky-King dealers had been appointed by the Parker-Weston Company; one of these dealers also possessed the single Vollmer dealership that had been granted. The territory immediately surrounding its home city was reserved by the company for its own retail activities. The plane dealers were located at widely separated points; they were not granted exclusive territories, but it was understood that one dealer should not attempt to sell to the prospective customer of another. Each dealer was located at an airport, and possessed a hangar, facilities for making minor repairs to planes, at least one Sky-King plane for demonstration purposes, and a small stock of spare parts for Sky-King airplanes. In addition, they all carried on taxi services and training operations. All dealers carried a stock of such minor engine parts as spark plugs and valves, and provided facilities for minor engine repairs. The dealer who held the Vollmer service station franchise carried a larger stock of engine parts than the other plane dealers, but his investment in these parts did not exceed \$2,000; in addition, he possessed engine tools and repair equipment which represented an investment of approximately \$2,000. Dealers were allowed to sell noncompeting makes of airplanes. They were required to contract for delivery of a specified number of planes annually, the number to be determined in a conference between the distributor and the dealer. A dealer's deposit of \$190 on each plane contracted for was required.

The president of the Parker-Weston Company believed that approximately 40 Sky-King planes were in operation in the company's territory early in 1930; of these, 21 had been sold by the company and its dealers in 10 months of 1929. The company did not know how many Vollmer engines were operating in the territory; it was believed, however, that they nearly all were in planes owned by fixed-base operators or in privately owned planes used for pleasure and for the transportation of executives and salesmen.⁴

It had been the experience of the Parker-Weston Company that fixed-base operators had certain disadvantages as plane

⁴ By adding the total number of licensed and identified planes in the territory, and multiplying the sum by the percentage of all planes in the United States equipped with Vollmer engines, one may conclude that approximately 80 Vollmer engines were operating in the territory.

dealers. It was true that they provided facilities for plane and engine service, which were essential for the economical and safe operation of planes, and that they had an experienced flying personnel and were enthusiastic about aviation. On the other hand, their enthusiasm for aviation usually manifested itself in an interest in the operation rather than the sale of aircraft. They were often poor salesmen and, while well versed in technical matters, usually were ignorant of proper marketing methods and policies. Although the sales manager of the Parker-Weston Company visited dealers frequently, he had met with little success in inducing them to discover and visit prospective purchasers of planes instead of waiting for customers to appear at the flying field. The Parker-Weston Company itself obtained its prospective customers principally by personal contact. Small space advertisements were inserted every few weeks in the aviation page of a local newspaper.

The sales manager of the Parker-Weston Company believed that the territory in which the company operated was a better potential market for airplanes than the company's sales might indicate. In his opinion, sales could be increased to a large extent by better merchandising methods on the part of dealers and by a more intense coverage of the territory. In order to do this it appeared to be important to appoint more dealers, but the appointment of additional fixed-base operators was not believed to be desirable in view of their inactivity in the sale of new planes. Although the appointment of additional fixed-base operators might serve to create additional minor servicing stations for planes, the company believed that the number already in operation was sufficient for the needs of the territory.

In this situation, the sales manager of the Parker-Weston Company had obtained the services of the Ledwith Company, a prominent automobile dealer and distributor in the company's home city. The Ledwith Company sold an automobile the models of which ranged in price from \$3,000 to \$7,000. This car had attained a high degree of popularity in the locality, and the clientele of the Ledwith Company included a large proportion of the wealthy group of citizens. The company owned a large and modern display and service building on an important boulevard connecting the downtown district with the high-class residential suburbs. Showrooms for the display of other makes of

expensive cars were located on the same boulevard, but the sales manager of the Parker-Weston Company believed that the showroom of the Ledwith Company occupied the most advantageous position.

The sales manager of the Parker-Weston Company had proposed to the Ledwith Company that it display a Sky-King plane in the company showroom, using a two-place, open-cockpit biplane for that purpose. He claimed that the plane display would be of great advertising value to the Ledwith Company and that it would induce people to enter the showroom who would not otherwise do so. As an additional inducement, the sales manager had offered the Ledwith Company a sub-dealership, making the company eligible for a commission of 10% on plane sales with no expense except that of maintaining the display space and that of the time allotted to plane sales by the company's automobile salesmen. The Parker-Weston Company had agreed to retain title to the plane and to make no charge for its use for display purposes and for demonstration flights. Since the average retail price of the Sky-King line of planes was approximately \$8,000, the Parker-Weston Company believed that the discount offered was liberal and that the sale of planes might become an important source of income for the Ledwith Company.

The Ledwith Company agreed reluctantly to place the plane on a trial display for a week in January, 1930, under the agreement proposed by the Parker-Weston Company. The president of the Ledwith Company refused to make the agreement permanent at the time; he believed that a period of trial was necessary, because his company was not keenly interested in aviation and because the space desired for display of the plane was the most valuable in the showroom. Three of the 10 cars in the showroom were removed to provide room for the plane display. Neither company planned to advertise the display.

After the plane had been on display for a week, executives of the Ledwith Company had become enthusiastic over the plan. Two excellent prospective purchasers of a plane had been found. Both of them were wealthy sportsmen, and neither of them had been interested in aviation or had considered buying a plane prior to seeing the display and talking with the automobile salesmen. Moreover, users of expensive cars other than that sold by the Ledwith Company had been attracted to the showroom by the

display of the plane, and had usually stopped to look at the cars after inspecting the plane.

The sales manager of the Parker-Weston Company stated that the arrangement had been mutually satisfactory at first. The Parker-Weston Company had been able to reach, through the Ledwith Company, a new group of possible purchasers of airplanes; the Ledwith Company, through the advertising value of the plane display, had been placed in a position not only to sell planes but also to sell more cars. The Parker-Weston Company provided service and demonstration facilities, and the Ledwith Company exerted merchandising effort.

After the plane had been on display for several weeks, however, the Ledwith Company received a shipment of new sport model cars, which it desired to display in the most advantageous part of its showroom, the space occupied by the Parker-Weston Company's plane. The president of the Ledwith Company thereupon proposed that the two companies discontinue the verbal agreement which had been in effect.

The president of the Ledwith Company stated that the floor space occupied by the plane was worth \$10,000 a year to his company as an aid in the sale of automobiles. Since the market for airplanes was limited at the time, a commission of 10% on the sale of each plane, in his opinion, could not compensate the Ledwith Company for the use of the valuable display space. Moreover, the presence of the plane had made it necessary to move three cars out of the showroom and into the garage. Thus it was impossible to display a full line of cars, and this fact, he believed, reacted unfavorably on their sale.

Finally, the president of the Ledwith Company stated that the volume of airplane sales which might be expected was not large enough to hold his interest. The company sold from 20 to 40 expensive cars per month and the company's annual sales volume was considerably in excess of \$1,000,000. In his opinion, a 10% commission on the sale of airplanes would be a negligible portion of his company's income.

The sales manager of the Parker-Weston Company did not know whether the automobile manufacturer whose cars the Ledwith Company sold had been influential in this change of attitude. Whether or not this was the case, the sales manager believed that one course of action would be to visit the manu-

facturing company and, by convincing the executives of the benefits their dealers might derive from the sale of planes, to obtain a recommendation that dealers sell planes as well as automobiles.

A second possible solution was to increase the automobile dealer's commission from 10% to 15% in an effort to stimulate his interest. Finally, the Parker-Weston Company could terminate the agreement at once, and seek to make a similar agreement with some other automobile retailer.

COMMENTARY: This case is significant for the following reasons:

(1) The Parker-Weston Company, as an airplane distributor and dealer, made no use of airplanes for securing rental or flying school income, but was concerned primarily with the problem of selling airplanes, hoping subsequently to secure profitable income from servicing activities.

(2) In connection with its primary motive, that of selling airplanes, the company was seeking actively and with open mind to discover experimentally what types of firms were likely to prove successful retailers of airplanes.

(3) The specific experiment in the case, that of attempting to enlist the sales and display services of an automobile firm, puts into concrete form a suggestion often heard throughout the aviation industry.

In regard to this company's attitude toward airplane sales and service, we have here an unusual situation. Typically, airplane distributors and dealers at the time of the case looked with passivity upon the sale of airplanes to final users, and evinced a waiting attitude; the customer need not be sought, but should be expected to make himself known. A corollary characteristic of this attitude was a reliance for income upon rental and flying school operations—upon the use of airplanes for charter, taxi, and other rental purposes, and upon the sale of flying courses. The attitude of the Parker-Weston Company was in sharp contrast to such policies; the company was bent upon selling airplanes, and was looking forward to the opportunities to provide service which were the natural aftermaths of a successful plane-selling program. This attitude was well designed to put to a test the question whether or not demand for airplanes in the company's retail territory could be sufficiently stimulated to justify concentrated efforts on the sale of airplanes. Passivity toward airplane sales and reliance on miscellaneous income-producing operations would have left this important question in abeyance.

The policy of open-minded experimentation with sales channels and methods which the Parker-Weston Company was following was

constructive and of a type promising to aid materially in the final solution of the problems of selling airplanes at retail. The Parker-Weston Company apparently recognized its responsibilities as a whole-sale distributor fully; this conclusion is apparent from the fact that the company was actively analyzing dealer possibilities with the purpose of selecting not only the most suitable firms, but the most suitable types of firms. This analysis was directed toward the sale of airplanes designed mainly for private users and business firms, markets to which a well-studied approach was much needed.

The specific plan of attempting to enlist the sales efforts of an automobile distributor had several obvious factors in its favor. The Ledwith Company as a firm already well established in the distribution and retailing of automobiles possessed a general knowledge of the art of selling transportation vehicles, had lists of customers for automobiles comparable in price to airplanes, and had display facilities for reaching a far larger number of persons than could be reached by the showroom of the Parker-Weston Company.

Though the foregoing factors tended to indicate that the community of interest and interchange of sales efforts between the two companies would be beneficial to both, there were underlying considerations of greater force pointing to an opposite conclusion. First, it was by no means clear that the two lines of products were supplementary rather than competitive. Sale of an airplane to a prospective purchaser of an automobile would be based largely on the argument that the plane had marked advantages, especially speed, freedom from traffic, and exhilaration, over the automobile. If he accepted these premises, the buyer of an airplane would be consistent in postponing purchase of a new automobile, or in deciding to purchase a less expensive make. Until all doubt on this matter could be disposed of, both the Ledwith Company and the manufacturer of the automobiles which it sold should have been reluctant to continue the arrangement.

Furthermore, the Ledwith Company could not continue to display an airplane without sacrificing highly valuable display space needed for the automobiles in which the company's funds were invested and upon the sale of which the company's automobile franchise was dependent. The Ledwith Company's experiment had indicated almost conclusively that display of an airplane in its showroom was an ineffective means of attracting automobile buyers, and that, at least at the time of the case, the retailing of airplanes was not a profitable supplement to the sale of automobiles.

It was apparent from all these circumstances, that the Ledwith Company could not afford to cooperate closely with the Parker-Weston Company; and without receiving cooperation in the reporting of prospective customers and in the work of following up such leads, the

Parker-Weston Company was unlikely to find it profitable to leave an airplane with the Ledwith Company.

In view of these circumstances, the Parker-Weston Company should have terminated its agreement with the Ledwith Company. If, however, some other mutually satisfactory agreement to continue the experiment could be reached between the automobile manufacturer, the Ledwith Company, and the Parker-Weston Company, the latter should have welcomed further opportunity to test the value of having an airplane on display at a point where it would be seen by numerous persons who might never visit an airport, but who might well be led to take an interest in purchasing an airplane after seeing it on display.

May, 1930

C. I. G.

15. FLEET AIRCRAFT, INC. (B)¹

MANUFACTURER—AIRPLANES

DISTRIBUTION CHANNELS—*Direct Sales to Dealers.* After a year's trial an airplane manufacturer selling its planes through a system of distributors selling at retail to individual users and at wholesale to dealers, considered this method of distribution unsatisfactory, attributing its ineffectiveness to the size of the territories which the distributors were expected to administer and to their lack of interest in retail sales and their consequently poor merchandising methods. In an effort to increase sales by increasing the effectiveness of its distributive system, the company decided to eliminate distributors, to sell planes direct to dealers, and to increase the discount to dealers.

(1930)

Fleet Aircraft, Inc., of Buffalo, New York, was formed in January, 1929, to undertake the manufacture and sale of the "Fleet" biplane, a two-place open-cockpit airplane designed for flight training and for pleasure flying. At that time it had been decided to effect distribution of the Fleet plane through a system of distributors selling planes at retail to individual users and at wholesale to dealers located in the exclusive territory of each distributor. During its first year of existence, the company's experience with the distributor and dealer method of distribution had not been satisfactory. In an effort, therefore, to increase sales by increasing the effectiveness of its distributive system, Fleet Aircraft, Inc., decided to abolish distributorships and to sell planes direct to dealers.

Fleet Aircraft, Inc., was a wholly-owned subsidiary of the Consolidated Aircraft Corporation of Buffalo, the largest independent manufacturer of airplanes in the United States. The Consolidated Aircraft Corporation also owned the entire capital stock of National Flying Schools, Incorporated; the Thomas-Morse Aircraft Corporation, manufacturers of all-metal observation planes for the United States Army; and Frontier Enterprises, Incorporated, operating, through a wholly-owned subsidiary, a

¹ See also Fleet Aircraft, Inc. (A) and (C), pp. 127 and 265.

sight-seeing line over Niagara Falls. In addition to these holdings, the Consolidated Aircraft Corporation owned a small interest in the Kinner Airplane and Motor Corporation, of Glendale, California, manufacturers of a well-known 100 horsepower fixed-radial air-cooled airplane engine. The Consolidated Aircraft Corporation itself manufactured several types of landplanes and flying boats for the United States Army and Navy and for commercial use. These planes included the Consolidated Admiral, a twin-motored flying boat designed for the United States Navy for patrol duty; the Consolidated Commodore, a commercial adaptation of the Admiral, with accommodations for 30 passengers; the Fleetster, an all-metal high-speed cabin monoplane with accommodations for 7 passengers; the Consolidated Courier, designed for advanced training by the National Guard; and the Consolidated Husky, which, the company stated, was the standard training plane of the United States Army and Navy.

The Fleet biplane was a commercial adaptation of the Consolidated Husky, and the company stated that all the essential features of the government plane had been retained in the design of the Fleet. The Fleet was characterized, in the company's opinion, by rugged construction, excellent performance, and low operating cost; consequently it was believed to be especially well adapted for use by flying schools as a training plane, by individual users of airplanes for pleasure flying, and by industrial companies. Equipped with the Kinner K-5 100 horsepower engine, the Fleet had the following performance characteristics:

High speed.....	115 miles per hour
Cruising speed.....	90-95 miles per hour
Landing speed.....	37 miles per hour
Rate of climb at sea level.....	730 feet per minute
Ceiling.....	13,000 feet

The cost per hour of operating Fleet planes, based upon 9 months' operation of Fleet planes and 6 years' operation of the Husky, and including depreciation on plane and engine at the list price, plane and engine overhaul, gasoline, and oil, was \$6.55; at 85 miles per hour, the operating cost was 7.7 cents per mile. At the purchaser's option, the Fleet was equipped with the Warner Scarab 110 horsepower fixed-radial air-cooled engine; the plane also might be furnished with floats for use as a seaplane. A higher price was charged for Fleet planes with this optional

equipment. The list price of the Fleet with standard equipment was \$4,985; the company stated that it was the highest priced plane of the two-place open-cockpit training class on the market.

With the company's entrance into the commercial market in 1929, the president of Fleet Aircraft, Inc., had decided to sell the Fleet biplane by means of a system of distributors and dealers, inasmuch as this was the usual practice in the industry for that type of plane. Distributors were granted franchises for the sale of Fleet planes at retail to users and at wholesale to dealers within exclusive territories; the size of the territory varied with its population and with the size and capability of the distributor, but it usually was several thousand square miles in area. The distributor was required to be a company of importance in territorial aeronautical activities, and Fleet Aircraft, Inc., must be satisfied of its financial standing and of the business ability of its executives. In practically all instances, the distributor was engaged in aerial taxi and flying school operations as well as in the sale of airplanes to individual purchasers and to dealers. The distributor's equipment included a hangar located at an airport or flying field, several planes for use in operations, and facilities for the overhaul and repair of planes. In a majority of cases, distributors also were in a position to furnish engine service of some kind, although the Kinner Airplane and Motor Company provided engine service in major aeronautical centers throughout the United States.

Distributors were required to commit themselves by contract to the purchase of a definite number of planes during the year 1929, and to specify the delivery dates. The number of planes contracted for varied according to the potential sales in the territory, and was decided upon by a conference between the distributor and officials of Fleet Aircraft, Inc. A deposit of \$500 for each plane contracted for was required of distributors as evidence of their good faith. Upon failure to accept the number of planes contracted for, the deposit was subject to forfeiture by the distributor. The distributor was required to maintain at least one Fleet plane in service for demonstration; usually this plane was used by the distributor in his flying school operations. He carried no stocks of planes for immediate delivery and carried only a small inventory of fast-moving spare parts for the planes, since the factory was able to ship planes and

spare parts upon receipt of the order. Shipments of planes to dealers appointed by the distributor were billed to the distributor, who paid the manufacturer by sight draft and collected from the dealer according to the terms agreed upon. The planes usually were shipped or flown direct from the factory to the dealer.

Fleet Aircraft, Inc., placed no restriction upon its distributors in the sale of competing or noncompeting planes, since the company believed that the merits of the Fleet plane would become more evident through direct comparison. Distributors were granted a discount of 20% from list price. A distributor usually employed one or more salesmen to carry on retail sales activities and to visit dealers.

Distributors were forbidden to sell planes or appoint dealers outside their exclusive territories. In order to protect itself from inactivity on the part of distributors, Fleet Aircraft, Inc., reserved the right to make sales direct from the factory in any territory; the distributor or dealer, however, was credited with the discount on such sales. Finally, as a protective measure, the company reserved the right to cancel contracts and to reapportion or withdraw a territory if, in its opinion, a distributor was not serving its best interests.

The distributor was the territorial administrator, and it was his duty so to conduct selling activities in his territory that the best interests of Fleet Aircraft, Inc., were served. The distributor appointed dealers and determined the discount to be allowed to them, although Fleet Aircraft, Inc., recommended a discount schedule of between 12½% and 15%. The distributor sold planes at retail in portions of his territory adjoining his base of operations; more distant portions of the territory were covered by dealers. Usually, the dealer's equipment and activities were similar to those of the distributor, the principal difference being in the smaller size of the dealer's operations. The dealer might or might not employ salesmen for the sole purpose of selling planes to users. Each dealer was required to own at least one Fleet plane for demonstration purposes, and he usually signed a contract with the distributor to accept delivery of a specified number of planes throughout the year.

In some territories, Fleet Aircraft, Inc., appointed dealers direct from the factory. Such appointments occurred when the company was unable to obtain the services of a company of

sufficient size and importance to fulfill the functions of a distributor. Upon appointment of a distributor, however, the dealers appointed from the factory were placed under the jurisdiction of the distributor.

At the end of 1929, Fleet Aircraft, Inc., had obtained the services of 15 distributors and 5 factory dealers; the company did not know the number of dealers who were operating under distributors, but it was substantially larger than the number of distributors. Several factory salesmen were employed to visit distributors and dealers in order to instruct them in proper selling methods and to inspect their equipment and operations. The company had undertaken a national advertising campaign by means of frequent full-page advertisements in prominent aeronautical trade journals, stressing the desirability of the Fleet plane for pleasure flying and for flying school operations; this advertising had also been used as a method of obtaining inquiries from prospective distributors and dealers. In this way, 217 Fleet planes had been sold in 1929; of this number, approximately 50 had been sold to individuals who used them for pleasure flying, and the remainder were in the hands of distributors, dealers, and other school operators who used them for flight training.

By the end of 1929, the president of Fleet Aircraft, Inc., had become dissatisfied with this method of distribution. He believed that, with a more effective method of selling Fleet planes, the sales of the company could have been greatly increased. In his opinion, there were several important reasons for the failure of the company's method of distribution, each of which centered on the fact that the distributor was not performing his function satisfactorily.

In the first place, the president of Fleet Aircraft, Inc., believed that it was unsound to expect a distributor to take over the administration of an exclusive territory at the existing stage of development of the aviation industry. Sales of aircraft were relatively small, and the supervision of the dealers' operations, the appointment of new dealers, and the solicitation of prospective purchasers of planes at retail throughout a territory several thousand square miles in area represented a large source of expense which the distributor, with his relatively limited sales volume, disliked to incur. As a result, the territory of the average distributor was

not properly covered, a sufficient number of dealers was not appointed, and those that were appointed devoted a large part of their time to other activities than sale of planes.

Again, Fleet Aircraft, Inc., had concluded that an appreciable number of fixed-base operators had accepted a Fleet distributor's franchise merely in order to obtain a discount on the planes used in training operations, and with no thought of carrying on a definite campaign to appoint dealers and to sell to individual purchasers. The company always had followed a policy of appointing distributors only after a thorough investigation, but this policy had not proved to be effective in eliminating such occurrences.

In the third place, the company had, in several cases, appointed as a distributor a fixed-base operator of outstanding importance in his territory only to discover later in the year that a second operator within the same territory but at a point distant from the headquarters of the distributor had become equally or more important. The second operator refused to accept anything less than a distributorship from Fleet Aircraft, Inc., yet the company's territorial distributor refused voluntarily to relinquish his exclusive right; under such circumstances, the company was unwilling to reapportion the territory because it would lose the distributor's goodwill. As a result, the second operator accepted the franchise for a competing make of plane and used that plane in his training operations.

A fourth difficulty arose from the advertising value which the distributors saw in operating a flying school in which Fleet planes, a direct adaptation of the standard training plane of the United States Army and Navy, were used. By appointing dealers or by selling Fleet planes to other flying schools, the distributor of Fleet planes thought that he was weakening the competitive position of his flying school operations; as a result, he did not seek to effect wide distribution for Fleet planes throughout his territory.

Finally, the fact that many important fixed-base operators established branch flying schools, many of which might be operating outside the territory included in their franchise for the distributorship or dealership of Fleet planes, was a source of dissatisfaction. The president of Fleet Aircraft, Inc., stated, for example, that a distributor operating in one state might open a branch flying school in an adjoining state where Fleet planes were

sold by a second distributor. The branch school would use Fleet planes obtained from the principal establishment, and would compete directly with the flying school activities of the Fleet distributor in that state. Such a situation was not forbidden in the contract between the distributor and the company. The branch school, however, could not sell Fleet planes to its students since, as residents of the territory of another distributor, they must purchase such planes from the territorial distributor or dealers. By referring such prospective customers to the territorial distributor or to territorial dealers, the operator of the branch flying school would be aiding a competitor, and he was reluctant to do this.

In an effort, therefore, to increase the effectiveness of the distributing system of the company, the president of Fleet Aircraft, Inc., decided to reorganize the company's channels of distribution by selling direct to dealers and by eliminating exclusive territories. In addition to these changes, the president of the company decided to increase the discount allowed to dealers to 25%. In the president's opinion, the dealer in planes should be able to make a profit on the sale of planes regardless of other activities in which he engaged; without the possibility of profitable operations in the sale of planes, the president believed that the dealer could not be expected to devote himself wholeheartedly to this activity.

In general, although their status was changed, the company's former distributors and dealers were retained. Each dealer was selected carefully with the purpose not only of appointing strong units in the merchandising plan, but also of allowing each dealer sufficient territory so that it was not necessary for him to compete directly with another Fleet dealer. The president of the company stated that the success of the plan depended largely upon the careful selection and placing of dealers, inasmuch as each must be granted sufficient opportunity to sell a profitable number of planes without taking an appreciable number of prospective customers from other Fleet dealers. Nevertheless, the company reserved the sole right to judge of the number of dealers which it was desirable to appoint. No exclusive territories were granted; a dealer might sell planes to anyone without restriction. If, for personal reasons, a dealer was unable to make a sale in a particular instance, Fleet Aircraft, Inc., reserved the right to sell direct from

the factory through one of its salesmen. Such sales were always made at the list price, and the dealer was always first given the opportunity of making the sale through his own organization.

In other respects, the company's distributing system and the requirements of dealers were similar to those of distributors under the former method. Each dealer, however, was required to contract for a minimum of 3 Fleet planes per year, and the usual deposit of \$500 per plane was required of him. The dealer was required to maintain at least one plane for demonstration; he need not carry planes for immediate resale, and his inventory of spare parts varied according to the needs of the territory in which he operated; no restriction was placed upon the sale of competing planes.

Fleet Aircraft, Inc., maintained a traveling force of five factory representatives, who visited dealers at frequent intervals in order to advise them on merchandising methods and to help them in closing sales. These factory representatives also selected and appointed new dealers.

The company also planned an advertising campaign for the Fleet plane in three prominent aeronautical trade journals. For this purpose, the company appropriated the sum of \$30,000 which was to be divided equally between advertisements designed to encourage the use of Fleet planes by flying school operators and those designed to encourage their use for pleasure flying. All leads obtained from trade journal advertising were to be turned over to the nearest dealers. In addition to this advertising, the company planned to participate in at least three important aircraft shows during 1930. Such dealer helps as booklets, pamphlets, and technical data were furnished to dealers free of charge; the company also accommodated those prospective purchasers of planes from dealers who wished to see the factory.

Theoretically, the president of Fleet Aircraft, Inc., stated, the sale of planes direct to dealers involved additional selling expense which the company must bear, since it took over the function of dealer supervision formerly discharged by the distributor. In practice, however, the situation was otherwise. The company had already during 1929 found it necessary to employ factory representatives to visit and supervise distributors and most of the dealers. This force of five factory representatives, after use of distributors was discontinued, still was considered large enough

to permit close supervision of dealers. The president believed, therefore, that the only additional expenses which the company would incur under its revised plan were the cost of increased advertising and dealer helps, and these expenses bore no relation to the elimination of distributors.

Upon the announcement of the change in policy, the president of Fleet Aircraft, Inc., received a number of violent protests from the company's existing distributors. After personal interviews with each, however, he stated that he had been able to convince them that the new policy would enable them, as dealers, to sell a larger number of planes than they had as distributors and to receive a larger profit on each sale. By the end of February, 1930, the company had appointed approximately 25 dealers, and it expected to obtain the services of a total of 100 throughout the United States during the year.

COMMENTARY: It is difficult in any field of business for one firm to carry on both wholesale and retail functions effectively and without partiality. It is difficult for one firm to sell both industrial goods and consumers' goods. And it is difficult for a firm to act satisfactorily as merchant when its profit interests are divided between selling merchandise and selling services in which the merchandise is used.

Yet the wholesale distributors for Fleet Aircraft, Inc., had been trying to do all three of these things. In view of the relatively limited demand for airplanes, the undeveloped art of airplane salesmanship, and the keenness of competition during 1929, it was not surprising that the distributors for Fleet airplanes rendered only mediocre service from the manufacturers' point of view. The surprising thing would have been for any considerable number of airplane distributors operating under similar conditions to succeed in performing their tasks more adequately.

Briefly, the distributors had been expected to do the following things:

1. Discover, appoint, and give sales direction to retail dealers in outlying areas.
2. Make sales at retail in nearby areas, to
 - (a) Consumers, i.e., private users.
 - (b) Industrial buyers, i.e., fixed-base operators and business firms.
3. Contract in advance and against deposits for a stated number of planes to be accepted annually.
4. Assume credit risks on sales.
5. Carry some spare parts inventories.

Had demand for airplanes been more widespread and knowledge of selling them more advanced, perhaps distributors would have been able to show better results than had appeared from the experiences of Fleet Aircraft, Inc. In any event, the decision of Fleet Aircraft, Inc., to simplify the operations of its sales outlets by assuming the distributorship function, and thus to permit all its sales outlets to concentrate more fully on retail selling, was a progressive step well worthy of experimentation. The company's decision was further supported by the fact that the distributors were not performing one of the principal wholesale functions—that of purchase and storage of stocks to be parceled out to retailers. On the contrary, deliveries typically were made from the factory directly to dealers.

The company had good reason, furthermore, to believe that it could sell directly to dealers at little more expense than it already was bearing, so that the change in policy would permit it to give larger discounts to dealers. The larger discounts, in turn, would help to divert dealers' attention from flight operations to airplane sales. The company's previous experience with direct sales to dealers in open territories gave it a background of experience for its new policy, and its employment of missionary salesmen supplied it with an excellent means of aiding dealers in learning to market airplanes effectively.

The problems of proper selection of dealers, territorial sales protection, and setting of a correct discount schedule, still required study. Whether or not formal assignment of exclusive territories to dealers would become necessary was not yet clear, but there were forceful reasons for granting territorial protection. The company's airplanes were products requiring a high degree of specialized and expensive sales effort; demand was for the most part latent, and customers had to be sought out. Repeat sales were certain to be very infrequent. Under these conditions, adequate protection for the company's selected dealers would give greater promise of successful market exploitation than would a policy permitting inter-dealer competition with its inevitable emphasis on price.

The fact that many former distributors were induced to relinquish their distributorships while continuing to act as dealers may be accepted as evidence that the company's major decision was a constructive move toward a sound marketing plan.

May, 1930

C. I. G.

16. GREAT LAKES AIRCRAFT CORPORATION (A)¹

MANUFACTURER—AIRPLANES

DISTRIBUTION CHANNELS—*Direct Sales to Dealers.* An airplane manufacturer had been selling its product through distributors and dealers, operating in exclusive territories. Because this plan had not yielded the expected volume of sales, the company decided to discontinue the use of distributors and to sell planes direct to dealers for distribution to ultimate users. In making this change, the company decided upon an increase in the discount granted to dealers, the appointment of a large number of dealers, and the formulation of an elaborate system of aiding dealers in making sales.

(1930)

During 1929, the Great Lakes Aircraft Corporation of Cleveland, Ohio, had sold its principal commercial product, the Great Lakes Sport Trainer, to distributors, operating in exclusive territories, who resold the planes to dealers. This arrangement had not been satisfactory to executives of the company, inasmuch as the expected volume of sales in that year had not been realized. Accordingly, early in 1930, the company decided to discontinue, as fast as practicable, the use of distributors in the sale of its planes, and to substitute therefor a policy of selling planes direct to dealers for distribution to ultimate users.

The Great Lakes Aircraft Corporation, a subsidiary of Allied Motor Industries, Incorporated, was formed in October, 1928. It operated a large and modern factory in Cleveland, Ohio, with a company-owned flying field immediately adjacent to the plant. The company manufactured several types of airplanes, including those made on special order for the United States Government; its principal commercial product, however, was the 2T-1A, or Sport Trainer model, a 2-place open-cockpit biplane, powered with the American Cirrus Mark III engine, developing 90 horsepower. With this engine, the performance characteristics of the Great Lakes Sport Trainer were as follows:

¹ See also Great Lakes Aircraft Corporation (B) and (C), pp. 241 and 323.

High speed.....	110 miles per hour
Cruising speed.....	90 miles per hour
Landing speed.....	40 miles per hour
Ceiling.....	16,900 feet
Climb.....	545 feet per minute

The Great Lakes Sport Trainer was designed to meet the requirements of a plane used both for sport by private individuals and for flight training by flying schools; another use to which the plane could be put was that of transporting executives and salesmen of business firms. Executives of the company believed that the plane was superior in performance, ease of handling, safety, and quality of construction to any other of its class and of comparable horsepower.

Executives of the company were convinced that flight instruction generally preceded the sale of an airplane and that a majority of flight students purchased for their private use that make of plane which they had used in receiving instruction. For this reason, and because the Great Lakes Sport Trainer was designed to appeal to operators of flying schools, such operators were regarded as the logical type of retail outlets for the plane. An additional reason for securing outlets of this type had been the company's belief that, in 1929, the sale of planes alone would not return the distributor or dealer sufficient income to enable him to make a profit; it appeared necessary, therefore, that any retail outlet for airplanes be engaged in some other aeronautical activity in order to remain in business. Among the retail outlets of the Great Lakes Aircraft Corporation, such activities almost invariably consisted of flight instruction, but also might include aerial taxi, photography, and other services, airplane and engine repair and maintenance, and the sale of accessories.

During 1929, the entire distribution of Great Lakes planes to civilian users had been effected through a system of distributors and dealers. The company had appointed approximately 10 distributors whose combined exclusive territories covered the most populous portions of the United States. The size of the territory allotted to a particular distributor depended upon the density of population in the territory and the size of the distributor's organization; in the case of a large and responsible applicant for a distributorship, the territory might include several states. A distributor was required to contract for the delivery of a minimum number of planes annually, the number depending upon the esti-

mated sales which could be made within the territory. A deposit of 10% of the retail price of the planes contracted for was required at the time the contract was made. Distributors were required to maintain stocks of spare parts adequate to provide for the probable needs of their territories. They could sell other makes of planes provided these planes did not compete directly with Great Lakes planes. Distributors were granted a discount of 25% on all purchases of Great Lakes planes.

In general, the distributor was the administrator of his territory. He appointed dealers, with the approval of the Great Lakes Aircraft Corporation. He resold to his dealers at a discount, usually making sales only on a cash basis. Both distributors and dealers sold planes at retail, but the retail territory of each was usually exclusive. Distributors were expected to visit dealers at frequent intervals to instruct them in selling methods and to supervise their sales activities. The Great Lakes Aircraft Corporation supervised the sales activities of distributors by means of correspondence and meetings at the factory; no travelling supervisors were employed for this purpose. Service both for the plane and for the engine was provided by dealers as well as by distributors; in general, however, the distributor possessed more equipment than did the dealer, usually being equipped to perform such major service operations as complete overhauls. Typically, a Great Lakes dealer owned a hangar located on a flying field and one or more planes for operating. Dealers differed principally from distributors only in size and in the extent of their operations. The sales manager of the Great Lakes Aircraft Corporation estimated that a dealer could begin operations on a capital of \$25,000.

The Great Lakes Aircraft Corporation had expended approximately \$90,000 in 1929 for advertising and sales promotion efforts. These efforts had been designed not only to obtain additional purchasers of Great Lakes planes, but also to obtain the services of additional distributors and dealers. The names of prospective purchasers of Great Lakes planes which were obtained as the result of these activities were turned over to the territorial distributors or dealers.

Under the system of distribution in effect in 1929, the sale of Great Lakes planes had not been satisfactory. The sales manager believed that the principal cause of unsatisfactory sales was the inadequacy of the discount schedule for both distributors

and dealers. In order to cover his territory properly, a dealer had to employ at least one salesman, and must be prepared to give a number of demonstration flights; in granting demonstrations, it was often necessary for the demonstration plane to fly to the city in which the prospective customer was located. Moreover, a large proportion of a dealer's leads were unproductive. As a result of the high cost of selling and the relatively small gross margins, a dealer usually confined his selling effort to his students and to those persons who visited the flying field or who were willing to do so in lieu of the dealer's visiting them.

The distributor's situation was similar to the dealer's. He encountered the same obstacles in making sales at retail, and the margin on sales to dealers appeared to be insufficient to compensate him for the cost of administering his territory. Under such circumstances, the sales manager of the Great Lakes Aircraft Corporation believed that what little selling effort distributors and dealers could afford to exert was confined to a limited area surrounding their bases of operations. Consequently, many prospective purchasers of Great Lakes planes were overlooked.

The sales manager of the Great Lakes Aircraft Corporation anticipated that this situation would become even more serious in 1930. In 1929, a large proportion of the sales of Great Lakes planes had been made to those flying school operators who also were acting as Great Lakes dealers, for use in their training activities. In the sales manager's opinion, this market would be a less fertile field for the sale of planes in 1930, since such a large number of flying schools had been established in 1929 that they would be able to meet the probable demands for their services in 1930 with little expansion either in number or in equipment. It appeared to be necessary, therefore, to formulate some system of distribution which would enable the retail outlets for Great Lakes planes to make sales at a profit to persons desiring planes for private use.

As a solution of this problem, the sales manager of the Great Lakes Aircraft Corporation decided to sell direct to dealers, to increase the discount granted to dealers, to appoint a large number of dealers, each operating in an exclusive territory small enough to enable him to work it intensively, and to formulate an elaborate system of aiding dealers in making sales. As a part of this program, the price of the Great Lakes Sport Trainer was reduced from \$4,990 to \$3,150, in order to widen its appeal to the

general public and to lower the cost of its use by flying schools for training.

By regrouping territories into smaller units and by appointing a larger number of dealers, the company believed that it would be able to induce the dealers to exert more intensive selling effort. Since each dealer would be expected to cover a small territory thoroughly rather than a comparatively large one superficially, it was expected that dealers would be more conscientious in reaching all possible purchasers. Distributors' franchises were to be renewed as those of dealers as quickly as conditions appeared to justify such action.

In order to give its dealers a greater opportunity of profiting from the sale of Great Lakes planes than they had received in the past, the company revised its discount schedule. As a means of giving the discounts a more direct relation to the selling results of the dealer than existed under the previous schedule, the company adopted a sliding scale of discounts, by which a dealer was granted a discount of 15% on the purchase of one plane; 18% on two; 20% on three; 22% on four; 24% on five; and 25% on the purchase of six or more; after the purchase of the second plane, the discounts became progressively retroactive. Contracts calling for the acceptance of a minimum number of planes annually were dropped.

The dealer helps furnished by the Great Lakes Aircraft Corporation were of an elaborate type. Each dealer was given a series of six manuals, entitled "The Great Lakes Operating-Sales Plan," outlining the proper operating and selling methods of dealers. Manual I, entitled "Organization," contained data on the formation of the corporation, promotion and financing, policies, equipment, accounting, insurance, and the manufacturer's support; Manual II, entitled "General Operations," was on the scope of activities, operating management, sources of revenue, and sales promotion; Manual III, entitled "School Operations," contained data on the organization, management, and equipment of the flying school, and on the sale of flight courses; Manual IV, entitled "Service," contained information on such topics as service policy, shop equipment, management, accessory sales, and business-getting methods; Manual V, entitled "Selling Airplanes," was devoted to an exposition of the proper selling methods for the sale of planes, and included information on market analyses, the training of

salesmen, prospect lists, advertising, and the manufacturer's support; and Manual VI, entitled "Salesman's Data," contained such information helpful to salesmen as the customer's point of view, sales data, typical questions and answers, and photographs. With the aid of this series, the sales manager of the Great Lakes Aircraft Corporation believed that the company was in a position to help each dealer build up a profitable business.

As an additional method of aiding the operations of its dealers, and as a method of obtaining reliable data on their costs, the Great Lakes Aircraft Corporation planned to develop a uniform accounting system for its dealers. In April, 1930, however, the details of this system had not been worked out.

The Great Lakes Aircraft Corporation planned an extensive advertising campaign during 1930. The greater part of the appropriation was to be expended for space in such general magazines as *Time*, *Nation's Business*, *Review of Reviews*, and *Town and Country*, in an effort to reach a relatively wealthy group of persons who might purchase planes for business or for pleasure, and in direct mail advertising sent to the sales executives of large corporations and others who could use planes for business purposes. All inquiries from these sources were referred to dealers. The remainder of the advertising appropriation was to be used for space in trade journals and for direct mail advertising to obtain new dealers and to induce flying schools to purchase Great Lakes planes for their operations.

The policy which the Great Lakes Aircraft Corporation planned to follow in its relations with dealers in 1930 was summed up in the following letter, which was sent to prospective dealers:

The time has now come when the handling of aircraft can be made profitable. Commercial Aviation is now in the same position that the automobile industry was some twenty years ago. Franchises which were then taken have developed into valuable businesses throughout the United States.

Both to stimulate the purchase of airplanes by thousands of new people and also to put the handling of its aircraft on a permanently profitable basis for its dealer associates, this company has adopted a new and constructive policy for 1930.

1. Its improved 1930 "Sport-Trainer" has been reduced in price from \$4,990 to \$3,150. The result of this reduction will be greater profits to Flying School operators, and largely increased sales to private owners.

2. It has developed a new "Operating-Sales Plan," coupled with a program of Sales Promotion and Dealer-Help comparable to those of leading automobile manufacturers. Dealers operating under this plan in protected territories can now build up profitable businesses and valuable goodwill.

Knowing of your interest in Commercial Aviation I suggest your careful consideration of our franchise. The establishment of a new Operating-Sales Company or the expansion of an existing one in your city under our plan now presents a *real opportunity*.

I will gladly assist in the formulation of sound plans to this end. Prompt action will, however, be necessary as choice territories are rapidly being granted. It is safe to say that few franchises will be available after the middle of the current flying season. Therefore if interested, wire or write at once.

THE POLICY OF THE GREAT LAKES AIRCRAFT CORPORATION

It is our belief that for some time to come the commissions from the sale of airplanes alone will not be sufficient for the building up of a permanent and profitable business.

That demonstration and flight training must generally precede a sale by preparing the prospect for the purchase of a plane.

That Operating-Sales Companies should become permanently established and make profits from the start. These profits should come from school and other operating revenues, as well as commissions on the sale of planes.

That contracts for large future commitments for planes are unfair to the dealer.

That the manufacturer has a definite obligation to assist the dealer in every practical way in making a success of his operations as a whole:—both the sale of ships and the revenue-producing field activities that contribute to ship selling.

The Great Lakes Aircraft Corporation therefore commits itself to a policy of maximum help to its dealers throughout the country for the double and related purpose of aiding them in building up a permanent and successful business, and in establishing a lasting and effective outlet for the sale and servicing of Great Lakes planes.

The company expected to appoint from 100 to 200 dealers in 1930, and it believed that the average sales of each dealer in that year should be three planes. Each response to the company's advertising by a prospective dealer would be followed up by a company representative, who would also travel in certain territories to solicit the services of dealers who had not responded to the advertising. When, in the company's opinion, a sufficient number of dealers had been appointed in one part of the United States,

the company representative would become the supervisor of the territory, responsible for its selling results and for visits to dealers to supervise their selling methods and to give them advice.

The sales manager of the Great Lakes Aircraft Corporation realized that the cost to the company itself of such a system of distribution might exceed that of the previous method, because of the necessity of employing territorial supervisors; the company would be required to assume no additional credit risk, however, since dealers paid cash upon delivery of a plane. In his opinion, the principal object of the plan, that of placing the dealer in a position where he could build up a permanent and profitable business, outweighed any small increase in the selling expense borne by the company, since a strong organization of dealers could be expected to result in largely increased sales.

COMMENTARY: Recognizing that the unprofitableness of its distributor-dealer system was a symptom calling for radical readjustment, the Great Lakes Aircraft Corporation approached the diagnosis of its distribution requirements with exemplary vigor and open-mindedness. The main points analyzed were:

- (1) Conditions of purchase by final buyer.
- (2) Functions and costs of distributors.
- (3) Functions and costs of dealers.
- (4) Size of dealers' territories.
- (5) Number of dealers.
- (6) Needs of dealers for
 - (a) Administrative training.
 - (b) Salesmanship training.

- (7) Suitability of requiring and enforcing advance sales contracts.

In view of the limited market knowledge readily available, the company's conclusions with respect to the foregoing points appear to be logical for the most part and well worthy of trial. Further market knowledge was needed, however, and the company doubtless planned to obtain additional data. Thus with regard to purchase by final buyers the company concluded that a preliminary condition, in a majority of instances, was the taking of a course of flying instruction. Further investigation, however, probably would have indicated that a very substantial number of persons could be sold airplanes *before* taking such a course; the potential market, viewed in this light, would be far greater than that composed of flight students only. Also, the company's conclusion on this point apparently omitted a specific finding as

to the conditions under which business firms, a large potential market, customarily purchased airplanes. Experimental research was needed to complete the analysis of conditions of purchase.

As to the functions of distributors, the reasoning of the company was similar to that brought out in several other cases.² Even in the absence of exact data on distributors' operating costs, the decision to discontinue use of distributors was justified on the ground that as a manufacturer of airplanes the company could not afford to be so far removed from its ultimate market or from its retail agencies during the period of sales development.

In its analysis of dealers' functions, the company left two major questions still unanswered:

(1) Was the relation of airplane margins and airplane sales expense to attainable sales volume such as to prevent concentration on airplane sales from being profitable? To answer this question specific knowledge of dealers' expenses and potential airplane sales was needed.

(2) Which was to be regarded as a dealer's major activity: sale of airplanes or operation of flying schools and airplane services?

The decision to limit dealers' franchises to territories which could be covered economically and could provide adequate sales was sound, but raised the difficult problem of how to determine such a territory. Closely interwoven with this problem was that of deciding how many dealers to appoint. Solutions to both questions had to give full weight to the factor of profit to the dealer, which the company correctly stressed throughout its analysis. Because of the lack of operating expense data for dealers, however, the company could not be sure that even its revised discounts were adequate to assure the active sales cooperation of dealers. Use of a standard accounting system by dealers would furnish pertinent data on this point, and the company's plans for getting such a system into use were praiseworthy. The results obtainable would be useful not only to the Great Lakes Aircraft Corporation in formulating its price and distribution plans, but also to the dealers themselves. The latter, generally speaking, had only a hazy idea of the profitableness of the various lines carried and operations performed.

The company's program for supplying dealers with literature on methods of administration and salesmanship would be effective only in proportion as the literature was correctly designed to meet operating conditions and as dealers could be induced to use it intelligently. Whatever the extent of these limitations, however, the program gave

² See Holworthy Aviation Company, p. 71; American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (B), p. 152; and Stinson Aircraft Corporation (C), p. 272.

promise of helping to fill a marked need—that of persuading dealers to shift their attention in part from airplane operation to analytical study of airplane marketing.

The soundness of the decision to discontinue the use of advance sales contracts which provided forfeiture of deposits against nonfulfillment is developed in another case³ and need only be reaffirmed here.

June, 1930

C. I. G.

³ See case of the Stinson Aircraft Corporation (B), p. 238.

17. DRESDEN AVIATION COMPANY (A)¹

MANUFACTURER—AIRCRAFT ENGINES

SERVICE ORGANIZATION—*Establishment of Field Service Facilities.* A manufacturer of aircraft engines, expecting that a large future demand for airplanes would come from business firms and from those individuals who desired them as pleasure vehicles, realized that since these users rarely possessed their own servicing facilities, the need for engine service in this market would be important. The company concluded that servicing facilities for its engines should be available at key centers throughout the United States, and that responsibility for providing this service rested with it rather than with airplane manufacturers.

DISTRIBUTION CHANNELS—*Selection of Type of Servicing Organization.* A manufacturer of aircraft engines, in establishing a nation-wide organization to provide maintenance service and to sell spare parts, after rejecting as distributors such agencies as automobile retailers, airplane supply companies, and air transport companies, had its choice of using either factory branches or independent distributors who would concentrate on supplying parts and service for the company's engines. Although recognizing the advantages to be derived from direct control of branches, the company rejected the factory branch plan because of the additional capital required, the amount of time needed to put this organization into operation, and the difficulty of providing adequate management for the branches.

(1929)

In the early months of 1929 the Dresden Aviation Company was confronted with the problem of establishing an organization to provide maintenance service and to sell spare parts throughout the United States for the aircraft engines which it manufactured. The company was undecided as to which of the following agencies to employ for these purposes: (1) automobile parts wholesalers; (2) automobile retailers or retailers of automobile parts and accessories; (3) airplane supply companies; (4) company-owned or leased warehouses carrying stocks of spare parts to be shipped on receipt of orders; (5) air transport companies; (6) factory branches providing service and selling spare parts to users and to independent dealers; (7) independent distributors who would concentrate on performing these same functions.

¹ Fictitious name. See also Dresden Aviation Company (B), p. 215.

The Dresden Aviation Company was one of the leading manufacturers of aircraft engines in the United States. In 1928, the company had erected a large, modern addition to its plant, which it believed was capable of providing for increases in production for several years. In 1929, the new plant was being operated at about 40% of capacity. The company's sales in 1928 had been approximately \$10,000,000.

Until 1927, virtually the entire production of the company had been sold to the United States Army and Navy for installation in military aircraft. Since the government maintained extensive servicing facilities for its operations, there had been little need for the Dresden Aviation Company to establish a servicing organization to accommodate this market. During 1927 and 1928, however, the sale of airplanes equipped with Dresden engines to users other than the United States Government had increased rapidly. By the end of 1927, over 300 Dresden engines were in use by commercial and private aircraft operators, and in 1928 this number exceeded 1,500. The rapid expansion of civil aviation and the great increase in the number of Dresden engines in use by civil operators had overburdened such meagre servicing facilities as were available.

The manufacture of an aircraft engine was a highly specialized operation requiring accurate machining and much special equipment. Because the consequences of defective motive power in aerial transportation tended to be more serious than in any other form of transportation, the greatest care was necessary in the design, construction, and inspection of an aircraft engine. Before assembly, each part of a Dresden motor was subjected to a minute inspection, and the slightest defect caused it to be discarded. After assembly, each motor was given a block test, during which it was operated in the factory at a high rate of speed for four hours. After the block test, the engine was dismantled and each part was given another thorough inspection. The engine was then reassembled and subjected to a second block test. Not until the engine had passed these tests successfully was it shipped. It was often necessary to spend several years in developing a new motor, and the good reputation of an aircraft engine, although exceedingly difficult to establish, was comparatively easy to ruin.

Practically the entire output of the Dresden Aviation Company for civilian use was sold to aircraft manufacturers, for installation

in their planes, by two salesmen and the executives of the company. Aircraft manufacturers usually sold planes for private and business use through a system of wholesale distributors and retail dealers; aircraft used in regular transport operations, however, usually were sold direct to the user by the manufacturer. Although the average period of usefulness of a Dresden engine ranged from 1,500 to 2,500 flying hours while the average life of many airplanes was somewhat longer, the replacement market for aircraft engines was negligible in 1929, principally because of the limited period during which civil aviation had been of importance.

The cost of the engine to the plane manufacturer amounted to from one-third to one-half the cost of manufacturing the finished airplane. As airplanes increased in size, the proportionate cost of the engines tended to decrease, but this was not always the case.

In spite of the fact that the aircraft engine was built into the airplane as an integral part, the engine tended to maintain its separate identity in the eyes of purchasers of planes. Most purchasers of airplanes realized that the performance of a plane and its safety in flight depended largely upon the performance of the motor. They were, therefore, inclined to purchase that plane which, along with good design and adaptability to their particular needs, used the engine which they believed to be the best. Thus, the reputation of the engine used by an airplane manufacturer might be the deciding point in the sale of an airplane. Many airplane manufacturers offered a choice of airplane engines in their planes in order to broaden their markets as much as possible. Airplane motors commonly were given distinctive names, such as Cyclone, Hornet, Whirlwind, Wasp, Scarab, Panther, Conqueror, and Challenger.

Whether or not the aircraft engine eventually would lose its individual identity in that of the plane was an important question, and one which executives of the Dresden Aviation Company hesitated to answer unconditionally. As the instances of engine failure diminished, as the gliding and other landing qualities of planes improved, and as the number of intermediate and emergency landing fields increased, the flying qualities of the plane itself might become of primary importance to the purchaser. On the other hand, it seemed more probable that the dependability of the motive power would never be taken for granted, in view of the possibly disastrous consequences of inefficiency or defects.

The company classified the principal users of airplanes into five groups: (1) individuals who used planes for pleasure, or for private transportation; (2) business companies which used planes for advertising, sales promotion, and the transportation of executives and salesmen; (3) aerial service companies or fixed-base operators using planes for crop dusting, for aerial mapping and photography, and for school, taxi, and sight-seeing service; (4) transport lines which used planes for the transportation of passengers, mail, or express over fixed routes on a regular schedule; and (5) the United States and foreign governments, which used planes in the Army and Navy, in coast and geodetic survey, and in forest fire patrol. The type of plane used by various members of each of these classes of consumers varied widely, however, according to individual needs, so that it was difficult to define each market in terms of airplane and engine types.

The line of aircraft engines manufactured by the Dresden Aviation Company was wider than that offered by any of its competitors and served practically all types of plane users. Competing engine manufacturers usually confined their activities to a narrow range of horsepower classes and, consequently, to a comparatively restricted market. Thus, one company might concentrate on engines of from 400 to 600 horsepower, used principally by transport lines; and another might confine itself to the 100-horsepower class, used largely on open-cockpit planes for training purposes and for sport. In 1929, the Dresden line of aircraft engines covered five important horsepower classes.

In the 90 to 110-horsepower engine class, the company manufactured a 90-horsepower model to sell at a list price of \$1,600. Planes using this class of engine were in the lower price scale, ranging from \$3,000 to \$6,000, and were usually of the open-cockpit type, carrying 1, 2, or 3 passengers. Such planes were used principally by aviation schools for training purposes and by private owners for sport or pleasure flying. Among the planes usually powered by engines of the 90 to 110-horsepower class were the Moth, Avian, Bird, Barling NB-3, Fleet, Great Lakes 2T-1, Lincoln PT, New Standard D-29, Swallow TP and Travel Air W-4,000.

The Dresden Aviation Company believed it likely that in the future an important part of the demand for airplanes would come from individuals purchasing them as pleasure vehicles and from

business firms; consequently, the company anticipated that the development of the aviation industry would parallel that of the automobile industry, although sales might never reach a similar level. The executives were convinced that the cost of owning a plane and learning to fly was the important obstacle to the attainment of this development, and that fear of the dangers of flying was only a minor factor. As a result, it appeared to them that motors in the lower horsepower classes, because of their relatively low cost, would attract the larger number of plane purchasers in the future; the company, therefore, wished to concentrate its selling efforts on motors of 300 horsepower and less. Of all horsepower classes, the Dresden Aviation Company anticipated that the market for planes of the class using 90 to 110-horsepower engines would develop the largest potential market in point of numbers, though almost certainly not in point of aggregate value. Prior to 1928, this market had been relatively undeveloped, but during that year, and during the first few months of 1929, the number of planes licensed in this class had increased far more rapidly than had those in any other class. Since the owners of such planes rarely possessed their own servicing facilities, the establishment of engine service stations for this market was important and seemed to the company likely to become more so.

Another section of the Dresden line consisted of engines of 165, 225, and 300 horsepower. The 165-horsepower engine sold at retail, or list, for \$3,100; planes using this type of engine were of the same general class as those using 90 to 110-horsepower engines, but were of higher price. Planes using this type of engine were of the 2, 3, and 4-passenger open-cockpit type as a rule, and were used largely for sport and pleasure. Such planes also might be used for light transport service. Engines of 165 horsepower sometimes were installed in planes ordinarily using 90 to 110-horsepower engines in order to improve their performance. Because of the higher cost of this type of engine, it was not used so extensively as the 90 to 110 horsepower engine in training planes, where speed and flexibility of performance were not considered so important as low initial cost and economical operation. This engine might be installed, however, in planes used for light taxi service and for the transportation of executives and salesmen; an additional market was provided by companies operating crop dusting and aerial photography service. Among

planes using this class of engine as standard equipment were the Eaglerock A-14, American Eagle Phaeton, Cessna DC-6 and AW, Command-Aire 5C-3, Curtiss-Robertson Thrush A, Emsco Challenger (6-passenger tri-motored transport plane), and Fairchild KR-34-A. The user of this type of plane was likely to go to outside sources for his engine service, although not to so great an extent as those using planes powered by 90 to 110-horsepower engines.

The list price of the 225-horsepower Dresden engine was \$3,990. Engines in this horsepower class were used in the same general type of planes as were those of the 165-horsepower class, although a larger proportion were of the cabin type carrying 4, 5, and 6 passengers. Companies operating taxi, crop dusting, and aerial photography service were likely to use this type of motor. The use of motors in this horsepower class for the transportation of business executives in cabin planes was important, although for this purpose most companies tended to use planes having motors in the 300-horsepower class. The 225-horsepower engine might also be used in light transport service, for carrying mail, passengers, and express on lines feeding important airways or for carrying mail on through routes. Aerial service companies and transport lines usually provided their own engine repair facilities, although rarely if ever would the aerial service company include equipment for complete overhaul. A business plane, however, would in all probability be serviced by an outside agency. Some of the planes having engines of this horsepower class as standard equipment were the New Standard D-25, Pitcairn Mailwing, Stearman C3-R, Travel Air C-4,000, Waco 220, Curtiss Fledgling, and Consolidated PT-3.

The 300-horsepower Dresden engine was listed at \$4,900. This type of engine was used very largely by transport lines and business companies on single and tri-motored cabin planes carrying from 6 to 14 passengers. Private planes owned by individuals seldom were equipped with engines of this horsepower class, but fixed-base operators used them in single-motored planes for taxi service. Transport lines and business firms were, however, the two largest users, and of these the transport lines were the more important. Among the single-motored cabin planes using engines of this horsepower class were the Lockheed Vega and Air Express, Fokker Universal, Ryan B-5 Brougham, Stearman

Coach, and Stinson Detroiter. The Ford 4ATE 12-passenger, the Fokker F-9 10-passenger, and the Fokker F-10 12-passenger were among the tri-motored planes using this class of engine. Executives of the Dresden Aviation Company estimated that the potential sales of engines in this class of civil aviation were second in number only to those of engines in the 90 to 110-horsepower class, and that in value they were even greater.

The 525-horsepower Dresden engine was listed at \$8,600. This class of engine was used principally for the heaviest type of air transport operations, although such engines were sometimes installed in tri-motored planes ordinarily equipped with engines of the 300-horsepower class in order to increase their performance. Multi-motored planes usually equipped with engines of this horsepower class included the Boeing 80-A 18-passenger biplane, the Keystone Patrician 20-passenger monoplane, the Consolidated Commodore, the Curtiss Condor, and the Fokker F-32. The Fokker FX-1 Flying Boat and the Boeing Mail 95 were among the single-motored planes using engines in this horsepower class. Prior to 1929, the market for this type of motor had not been large, but it was expected that in view of the apparent tendency toward the use of heavy planes in transport operations sales would increase.

The demand for airplanes from the United States Government was relatively large and called for the use of all types of engines, although demand for the 90 to 110-horsepower class was unimportant. Since the government furnished its own servicing facilities to a great extent, the Dresden Aviation Company believed that this market had no bearing on the problem of providing service to users of the company's products.

Executives of the Dresden Aviation Company were convinced that the availability, quality, impartiality, and uniformity in price of the servicing facilities offered for aircraft engines would be as important in establishing the reputation of the product among commercial and private users as would be its design, dependability, or operating performance. Most of the important plane manufacturing companies concentrated their production on the manufacture of the planes themselves and purchased their engines from companies specializing in that field. The typical plane manufacturing company made no effort to service the engines, confining such servicing facilities as it offered to the plane itself. There was

little need for this service, however, in the absence of external factors such as crashes and poor landings, whereas the aircraft engine needed servicing as the result of ordinary operations, even when it was given the best of care.

For routine engine overhaul work, the operator if necessary could fly the plane some distance. In case of a breakdown, however, the plane was forced down. If the failure was of a minor character, the necessary tools, parts, and mechanics could be sent to the scene of the failure and repairs made on the spot; in more serious cases, the engine, or both the engine and the plane, would have to be shipped to a service station by railroad or motor truck. In engines which were given proper care, breakdowns rarely occurred; when they did occur, however, they were likely to be of a character necessitating transportation of the engine to a service station.

To assure perfect operation it was necessary, in the opinion of the executives of the Dresden Aviation Company, that an airplane engine be given a "top overhaul" after every 150 hours of flying and a thorough overhaul after every 300 hours. In a top overhaul, the cylinder heads of the engine were taken off, carbon deposits were removed, valves were ground or replaced, new spark plugs were installed, and any other work found to be necessary by inspection of the engine was done. From 10 to 20 hours of skilled labor, at a cost of approximately \$2 an hour, was necessary to give a Dresden engine a top overhaul. The cost of replacement parts varied widely, but ordinarily this expense was less than the cost of labor. The complete overhaul of a Dresden engine required a minimum of 75 hours of skilled labor and from \$50 to \$1,000 worth of spare parts, depending on the size of the engine and on its length of service.

In the company's opinion it was important to the reputation of Dresden engines that service be readily obtainable when needed and that the quality of the service be of the highest type. Many users of aircraft were unable to differentiate between engine trouble caused by defects in the engine itself and trouble caused by poor servicing. In servicing an engine, fine adjustments were necessary, and close supervision, highly skilled labor, and special tools must be used in order to assure high quality of workmanship.

Impartiality in the quality and promptness of the service as between customers was also important. Because of the large

number of plane manufacturers who purchased Dresden engines for use in their planes, the Dresden Aviation Company could not afford to allow preferential service to be given to the product of any one manufacturer or group of manufacturers, since such a policy would result in loss of goodwill and a consequent loss of sales. The enforcement of a uniform price policy both for labor and for spare parts was judged to be desirable for the same reason.

The distribution of spare parts for Dresden engines was closely related to servicing facilities, since an engine that required service almost invariably required spare parts as well. For this reason, executives of the Dresden Aviation Company believed that any agency servicing Dresden motors should also distribute spare parts.

Prior to 1929 sales of planes equipped with Dresden engines to commercial or private users of aircraft had been so small that, in the opinion of the executives of the Dresden Aviation Company, the engine service required was not sufficient to justify the establishment of a national service and spare parts distribution system. As a result, the company itself had functioned as a retailer of engine parts and had maintained a complete stock of spare parts only at the factory. Parts were sold to all purchasers at list prices. If a complete engine overhaul was desired, the engine had to be shipped to the factory and several weeks might elapse between the time the owner shipped his engine and the time he received it again. Light overhaul work on engines was performed by several air transport lines, school and taxi operators, and plane distributors, but such service was not subject to the engine manufacturer's control and it was difficult to assure the impartiality and quality of the work. Transport lines and school and taxi operators maintained servicing facilities and small stocks of spare parts principally for their own use. The stocks carried were by no means complete, and it was often difficult for a private plane owner to obtain the parts desired, since even if they were in stock the commercial operator might wish to reserve them for his own use. In cities which contained the headquarters of several transport lines and fixed-base operators, each carried its own inventory of parts and a duplication of stocks resulted. An uneconomical burden also was imposed upon the small operator using fewer than 20 engines, since he must maintain the same stock of parts as the large operator.

In addition to these servicing facilities, the Dresden Aviation Company maintained a field force of 14 highly skilled mechanics who traveled throughout the United States to inspect and repair Dresden engines which were claimed to be defective and to advise all types of operators on the best methods of repairing and overhauling the engines. The principal interest of these mechanics was in the repair of engines which were claimed to be faulty; the Dresden Aviation Company had instituted a liberal policy in complying with its guaranty that Dresden engines which developed defects due to materials or workmanship within 90 days of purchase would be repaired, and defective parts replaced, free of charge. The company stated that approximately 90% of the work done in accordance with the terms of the guaranty was "policy" work; under a strict interpretation, the company could not be held responsible for such repairs and replacements.

In setting up standards for a servicing organization, the Dresden Aviation Company believed that the theoretically ideal Dresden engine servicing organization should engage in that activity exclusively. In practice, however, there was a serious difficulty in the way of this ideal. This difficulty lay in the fact that the Dresden franchise in itself was judged by the company to be unprofitable in 1929. As a result, any independent agency giving Dresden service probably would be forced to engage also in some other activity in order to remain in business. The company believed, nevertheless, that its service franchise would be considered the most valuable in the aviation industry because of the relatively large number of Dresden engines in use, but that part of this value would be attributed to the fact that those who visited an agency for engine service might also purchase other services or merchandise.

From its past experience the Dresden Aviation Company recognized the desirability of having as many servicing agencies as possible throughout the United States. In order to provide complete and quickly available stocks of spare parts to users without overburdening its servicing agencies, the company wished to model its servicing organization on the wholesale and retail plan, with at least six distributors selling spare parts in their respective territories at retail to operators of aircraft and at wholesale to independent dealers who would perform the retail function in districts not immediately adjacent to those of the distributors.

Each distributor and dealer would be expected to employ thoroughly competent mechanics and to carry an adequate supply of tools and spare parts, including special tools for Dresden engines. The number of tools and parts required for an adequate supply would vary according to the number of planes in the territory, but more closely according to the function the particular servicing agency performed. If it distributed spare parts to other servicing agencies in the territory, it would have to carry a relatively large inventory; if it were a parts dealer, purchasing from a parts distributor, a small inventory would be sufficient. Tool requirements also would vary according to function. The need of elaborate engine repairs or of a complete overhaul was relatively infrequent; consequently, only the territorial distributing agencies would need to carry a complete set of tools and of spare parts. The dealers would be required to carry only the faster moving spare parts and a supply of tools adequate to perform top overhauls.

Executives of the Dresden Aviation Company believed that before a servicing agency could give satisfactory top overhaul service, an inventory of at least \$2,000 in tools was necessary, half of which was for tools which could be used only on Dresden engines. A complete overhaul necessitated the use of at least \$5,000 worth of tools, of which \$1,500 would consist of special Dresden engine tools. The services of a highly skilled mechanic thoroughly familiar with Dresden engines were essential for satisfactory complete overhaul and were highly desirable for top overhaul.

Executives of the Dresden Aviation Company stated that the cost of establishing a spare parts distributing agency would vary between the following estimates, according to the size of the territory, the number of planes therein, the distance from the factory, and the financial resources of those behind the project:

	Minimum	Maximum
Hangar.....	\$10,000	\$100,000
Standard tool equipment (drill presses, grinders, lathes, etc.)	2,000	10,000
Special Dresden tools.....	1,500	2,000
Furniture & fixtures.....	500	3,000
Spare parts inventory.....	10,000	50,000
Accessories & supplies.....	3,000	10,000
Totals.....	\$27,000	\$175,000

In 1929, because of the recent and rapid development of the aviation industry and the Dresden Aviation Company's conse-

quent difficulty in manufacturing enough spare parts to meet the demand, the average investment probably would be closer to the minimum figure than to the maximum.

The estimated average cost of establishing a spare parts dealer's agency was approximately \$15,000, divided as follows:

	Average Cost
Hangar.....	\$10,000
Standard tool equipment (drill presses, grinders, lathes, etc.)	2,000
Special Dresden tools.....	300
Furniture & fixtures.....	300
Spare parts inventory (cylinders, pistons, valve mechanisms, carburetor and magneto parts, spark plugs, nuts and bolts, etc.).....	2,000
Accessories & supplies.....	400
Total.....	<u>\$15,000</u>

In considering the seven proposed methods of obtaining Dresden engine service and spare parts distribution throughout the United States, the Dresden Aviation Company gave little attention to automobile parts wholesalers; automobile retailers or retailers of automobile parts and accessories; airplane supply companies; and factory-owned or leased warehouses. Airplane engine service and spare parts distribution were closely related functions, and facilities for one without facilities for the other were of little value. Some of these agencies might have facilities for automobile engine service, but the tools needed for airplane engine service were of an entirely different type. Moreover, with the exception of factory-owned or leased warehouses, none of those potential agencies could be expected to regard the Dresden franchise as their most valuable asset. Furthermore, the agencies operating in the automobile industry were rarely located near an airport. Finally, the Dresden Aviation Company was convinced that if automobile parts wholesalers or factory-owned or leased warehouses intervened between itself and its spare parts dealers, it would not have sufficiently close contact with its retail service agencies.

The use of air transportation companies as spare parts distributors and servicing agents was given more serious consideration but was finally rejected, although executives of the Dresden Aviation Company believed that use of such agencies would have certain advantages. In the course of their operations, engine service was needed, and since they usually operated a large number of planes, most of the transport lines had servicing facilities of

some type already installed at the airport of at least one city on their routes; these could easily be adapted to the service needs of privately-owned planes. Moreover, with their readily available transport facilities, spare parts inventories could be kept at a minimum by rush shipments to dealers or to branches. Finally, if transport lines were given the proposed distributor's discount of 40% on spare parts, their maintenance costs on Dresden engines would be lowered appreciably, and they would have strong reasons for purchasing Dresden engines in case of future needs.

The use of transport lines as service and spare parts distributors, however, involved certain major disadvantages. In the first place, transport lines could never be induced to regard engine service and spare parts distribution as their primary activity. In the second place, by using certain transport lines as its distributors, the company would be likely to incur the ill will of the others. A transport line would be unwilling to go to a competitor in order to obtain service or spare parts, since it not only would be aiding the competitor but would not feel sure of obtaining impartial service. Furthermore, by allowing the distributors' discounts on spare parts to those transport lines which acted as its agents, the Dresden Aviation Company would be aiding some users of Dresden motors at the expense of others.

In the final analysis, then, the Dresden Aviation Company believed that the choice of a method for providing spare parts distribution and servicing facilities lay between the establishment of factory branches, equipped for complete engine overhaul and repair and carrying a full line of spare parts for their own use and for distribution to independent dealers offering lighter service, and the appointment of independent distributors whose chief activity would be the performance of these functions.

It was proposed that the company should establish branches at the airports in New York City, Boston, Atlanta, Chicago, Wichita or Kansas City, Salt Lake City, and San Francisco; if there were several airports in a city, the branch would be established at the most important one. Each of these cities was an important aviation center, and each had numerous transportation facilities connecting it with minor aviation centers in the surrounding territory. Each branch, according to the proposal, was to be equipped with a complete set of both standard and special Dresden tools, was to carry a full line of Dresden engine spare parts, and

was to own a hangar of the latest design. If the factory branches were established they would engage in no flying or airplane selling activities, but they would be permitted to sell such accessories and supplies not directly connected with aircraft engines as wing fabric, flight instruments, goggles, fire extinguishers, propellers, parachutes, airplane tires, and lacquer. The sale of this merchandise would be a secondary activity, but it would help to carry the overhead and would have no effect on the impartiality of engine service. Other makes of engines would be serviced, but this activity, too, would be a sideline, and the only authorized service performed would be on Dresden engines. The investment cost of establishing such a factory branch would be from \$100,000 to \$175,000, depending upon the size of the territory and the number of planes therein.

Each factory branch, if this plan was adopted, was to appoint independent companies throughout its territory as parts dealers. These dealers were to provide such service as top overhauls and light repairs on Dresden engines and to carry a stock of the faster-selling spare parts, to be purchased from factory branches at a 25% discount from list and to be sold at a 10% discount to commercial users. A commercial user was defined as one operating aircraft primarily for profit. Other purchasers of spare parts were to pay the list prices. The number of parts dealers appointed by each factory branch would vary according to the area of the territory and the number of planes within it. Although the Dresden Aviation Company recognized the desirability of the parts dealers' confining their activities to the sale of Dresden parts, the servicing of Dresden engines, and the sale of accessories, the comparatively small volume of sales which each dealer could expect from these activities made it doubtful if this restriction could be enforced; parts dealers would not be allowed, however, to accept a service franchise from other engine manufacturers. The Dresden Aviation Company expected to retain its staff of field service mechanics to supervise "policy and guarantee" work, although the size of this staff might be reduced materially if factory branches were established.

The principal difference between the proposed factory branch system and an independent distributor system was that, under the latter plan, the functions of the factory branch would be performed by a company having no financial connection with the

Dresden Aviation Company. The independent spare parts distributor would be awarded an exclusive territory, the size of the territory to vary according to the size and ability of the distributor. Distributors would receive a discount of 40% on spare parts and would be expected to allow a 25% discount to dealers. All other purchasers, under this plan, were to pay list prices except commercial users, who were to be allowed a 10% discount.

If independent spare parts distributors were used, they would carry complete stocks of Dresden spare parts and provide facilities for any type of engine overhaul. Subject to the approval of the Dresden Aviation Company, distributors were to appoint spare parts dealers within their territories; spare parts dealers might be companies independent of the distributor or they might be branches of the distributor's organization. In either case, they were to perform the same services as such agencies would under the factory branch system.

The Dresden Aviation Company recognized several advantages in establishing factory branches and appointing dealers to operate under them. In the first place, the company could maintain direct control over the policies of such an organization. Discount policies could be rigidly maintained, adequate stocks of spare parts insured, and all customers treated impartially. Personnel, furthermore, could be shifted quickly from one section of the United States to another. Service facilities could be withdrawn where they were not needed, or increased to meet a sudden demand; and a factory branch whose personnel was weak could be strengthened by a change in management. Under a system composed entirely of private distributors and service stations, such flexibility would be impossible; to cancel and to reestablish distributorships would be costly, and could seldom be done without unpleasant notoriety and loss of goodwill.

By maintaining factory branches, moreover, the company would come into direct contact with all types of users of airplanes. This direct contact would be helpful in formulating sales policies and in suggesting improvements in the product. Furthermore, if the company dealt directly with users of Dresden engines through its branches, it would be in a position to obtain and hold the users' goodwill, and would not run the risk of having private distributors obtain this goodwill for themselves and then cancel their contract and sell competing engines or fail and go out of business.

The service provided at factory branches could be maintained at a high standard, providing a model for dealers. The branches also could serve as instruction centers for mechanics. Furthermore, the company's force of traveling service men could be reduced, since most of the work performed by the traveling service representatives could be performed at the branches.

A system of factory branches in addition would have a publicity value. For example, a distinctive color and type of building could be adopted and uniform organization and practice made effective in the shops.

Finally, a system of branches would provide an excellent nucleus for future expansion. The company would have the assurance of continuous operation and complete cooperation from branches owned by itself, and could proceed with plans to prepare for anticipated growth in the future.

The chief disadvantages of establishing factory branches appeared to be: a branch system would require additional capital; it would place a burden of operating expense and possibly of heavy financial loss upon the company; it would require more time to put in operation than would an organization of private distributors; competent management for the branches would be difficult to obtain; and, for reasons based on local pride and self-interest, various individuals and firms interested in aviation might resent a policy of "foreign-owned" branches, especially since such branches would be selling supplies and accessories.

The necessity for raising additional capital was not looked upon as an important disadvantage, since in 1928 the public had displayed a marked willingness to participate in the stock offering of aviation enterprises. The operating expense and possibility of loss, however, were regarded as more serious.

The time required to establish a branch organization also was looked upon as an important consideration. The number of Dresden engines in civil use was rapidly increasing, and the need for adequate service for maintenance and spare parts was becoming correspondingly greater. If factory branches were to be established, the necessity of building and equipping these branches and of obtaining the personnel would cause delay. On the other hand, the company had received many requests from private agencies for the privilege of selling Dresden engines and parts and of providing service.

The company regarded the difficulty of securing capable management for its branches as a serious obstacle to the success of this plan. Men of proven ability in the aviation industry were scarce, and would become even more difficult to obtain as the industry realized its promise of rapid expansion. The company believed that men who could manage branches capably must combine technical knowledge and business ability to an unusual degree, and a man of this calibre, it was thought, usually desired to form his own company rather than to work in a subordinate position in a larger company. Although the company anticipated no difficulty in obtaining the service of able and financially sound independent distributors, it did expect difficulty in obtaining distributors of that character who would confine their activities to the sale of Dresden spare parts, the servicing of Dresden engines, and the sale of airplane accessories. However, in spite of this difficulty, and although the executives of the Dresden Aviation Company recognized the desirability from a theoretical point of view of establishing factory branches, the obstacles of that plan appeared to them to be insurmountable early in 1929, and they consequently decided to appoint independent distributors. Those distributors were designated "Dresden Parts Distributors" and were authorized to appoint dealers, termed "Dresden Approved Service Stations." This decision was by no means final, however, and the Dresden Aviation Company was still undecided as to which of the methods would be adopted as a permanent policy.

The more important provisions of the contract entered into by the Dresden Aviation Company and the Dresden parts distributors were:

(1) *Territory.*

Dresden appoints the Distributor its exclusive Authorized Parts Distributor in the States of . . . for a period of one year from the date of this contract and so long as the Distributor faithfully performs and complies with the terms and provisions of this contract, Dresden will not appoint any other Authorized Parts Distributor whose place of business shall be located within the above states.

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(2) *Dresden Approved Service Stations.*

In addition to Parts Distributors there will be established Dresden Approved Service Stations. The normal procedure for establishing

such stations will be for the Distributor to determine the places where stations are most required and then either to encourage existing stations to make application for the Dresden franchise or to encourage and assist in the establishment of new stations. Written approval must be given by Dresden before such a station can be given a discount on spare parts prices.

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(5) *Parts Discounts.*

Dresden will sell parts for aviation engines manufactured by it to the Distributor at a discount of 40% from the list prices, f.o.b. factory, on all such parts shipped direct to the Distributor except on such parts as are expressly sold to the Distributor at special prices.

Parts ordered from the factory by the Distributor to be shipped direct to engine users or Service Stations, (except Service Stations established by Distributor) but to be paid for by the distributor will be thus shipped and shall be paid for by the Distributor at his normal discount as above set forth reduced by 5 (that is to say, 40% shall be 35%, and so on) except when the Distributor is on a c.o.d. basis. If the Distributor is on a c.o.d. basis, parts will be shipped to such engine users or service stations c.o.d. with no discount or payment to the Distributor.

Parts ordered direct from Dresden by engine users or Service Stations or sold to such engine users or Service Stations directly by Dresden, may at Dresden's option be shipped direct to such engine users or Service Stations with no discount to the Distributor, who shall have no interest in such transactions.

Parts prices are subject to change without notice.

(6) *Payment for Parts.*

Except as below stated, all parts shall be sold to the Distributor without credit, that is to say, on a c.o.d. basis. All shipments shall be on sight draft against bill of lading if by freight and c.o.d. if by express or parcel post. But sales may be made hereunder from time to time on credit if and whenever such credit and the terms thereof shall be specially and expressly agreed upon between the parties.

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(7) *Distributor's Selling Prices.*

The Distributor will charge for all Dresden parts on resale thereof not in excess of the current list prices established by Dresden. The Distributor will make no additions to the prices to cover transportation or handling charges from Dresden to the Distributor or for any other purpose or reason.

Schedule "A" which is attached hereto and hereof made a part sets forth the individuals, partnerships and corporations entitled to

certain discounts from list prices specified in said Schedule "A," and the Distributor will not charge these customers on resale in excess of list prices less the discounts specified in said Schedule.

February 1, 1929

DRESDEN PARTS DEALER'S CONTRACT

SCHEDULE "A"

This schedule is hereby identified as the Schedule "A" referred to in paragraph (6) of the Dresden Parts Dealer's Contract. It is subject to revision at any time in the sole discretion of Dresden.

The individuals, partnerships and corporations entitled to discounts from Dresden's list prices are as follows:

All aircraft manufacturers and all persons or companies operating airplanes primarily for profit shall be entitled to a discount of 10% on all except specially priced parts.

The specific persons or companies to whom this 10% discount is given shall be determined by the ultimate vendor as he sees fit without obligation to notify any other party.

Service stations which meet the required standards of Dresden and which Dresden in its sole and absolute discretion will designate as Approved Dresden Service Stations shall be entitled to a discount of 25% on all except specially priced parts.

Specially priced parts are designated in Dresden Parts Catalogs and other Dresden printed matter by asterisks following the list prices. Such parts will be sold by Dresden at special net prices.

(8) *Service Requirements.*

The Distributor shall maintain a stock of parts and suitable storage facilities so located and equipped as properly to meet the requirements of good service to its customers and also adequate office hours and sufficient personnel to execute promptly any and all orders received by it from its customers. The Distributor further agrees:

(a) To maintain a place of business with adequate facilities satisfactory and suitable in location, size, equipment and personnel for the maintenance needs of all Dresden engines in the territory, resident or transient.

(b) To see that satisfactory service is maintained by Approved Service Stations under his jurisdiction.

(c) To operate his own service facilities under approved Dresden practices and to sell and charge for such service at prices not to exceed Dresden's recommended prices.

(d) To use and sell as repair parts for Dresden engines only such parts as are purchased from or have the written approval of Dresden.

(e) To give full credit or to refund to all engine users, resident or transient, for all allowances and replacements made or approved by

Dresden; and to charge no profit to any engine user on any such allowance or replacement.

(f) To maintain an adequate record and list of engine users in the territory for service follow-up. To promptly send mailings, suggestions and recommendations to this list of engine users in accordance with advice from Dresden.

(g) To assist and help all Approved Service Stations under his jurisdiction in the proper and correct method of maintenance of Dresden engines.

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(10) *Dresden Warranty.*

Following is the standard Dresden warranty which applies to all Dresden products:

"We warrant each new engine manufactured by us to be free from defects in material and workmanship under normal use and service and proper installation; our obligation under this warranty being limited to making good at our factory any part or parts thereof which shall within ninety (90) days after delivery of such engine to the original purchaser be returned to us with transportation charges prepaid and which our examination shall disclose to our satisfaction to have been defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part and we neither assume nor authorize any other person to assume for us any other liability in connection with the sale of our engines.

"This warranty does not cover any labor charges for replacement of parts, adjustments, repairs, or any other work done on Dresden engines.

"This warranty shall not apply to any engine which shall have been repaired or altered outside of our factory in any way so as, in our judgment, to affect its stability, or which has been subject to misuse, negligence or accident, or which shall have been operated at a speed exceeding the factory rated speed.

"We make no warranty whatever in respect to ignition, starting devices, generators, carburetors, or other trade accessories, inasmuch as they are usually warranted separately by their respective manufacturers."

While the above warranty covers all parts sold by the Distributor and purchased from Dresden subject to the foregoing conditions, all claims for replacement or otherwise thereunder from the customers of the Distributor shall be a matter of adjustment between said customers and Dresden, such claims to be submitted either to the authorized representative of Dresden appointed for that purpose or to the Dresden factory, as Dresden may from time to time determine, the Distributor having no part or interest therein.

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(12) *Access to Distributor's Books.*

Dresden shall, during reasonable business hours and at reasonable intervals, have access to, and the right to inspect, the premises and books of account of the Distributor.

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In addition to the terms of the contract, the Dresden Aviation Company specified the following five requirements of Dresden parts distributors:

1. Impartiality in providing service for all users of Dresden engines.
2. Employment of competent mechanics, at least one of whom must be expert in the overhaul and maintenance of Dresden engines.
3. Maintenance of a stock of spare parts ranging in amount from \$15,000 to \$30,000, depending upon the number of Dresden engines in use in that particular territory.
4. Shop equipment adequate to provide complete overhaul service, which should include an investment of at least \$5,000 in such equipment as lathes, grinders, and other tools. Approximately \$1,500 of this investment must be in special tools that could be used only on Dresden engines.
5. Willingness to carry out the policies suggested by the Dresden Aviation Company, such as to sell all parts at list prices and to treat customers with consideration.

It was expected that Dresden parts distributors would be relatively few in number; service stations, however, would be more numerous and it was largely upon these organizations that the Dresden Aviation Company expected to depend for its field representation. The company expected that 50 service stations would be in operation in 1929 and that the number would probably exceed 100 in 1930. The company's policy was to expand the number of these service stations rapidly because, after shops had once been tooled to service Dresden engines, they were more likely to remain loyal to the Dresden organization.

Service stations were required to maintain a stock of spare parts ranging in amount from \$2,000 to \$6,000; they received most of their stock of parts from their local Dresden parts distributors. Service stations were required to make an investment of \$2,000 in tools, approximately one-half of which was for special

tools designed solely for use on Dresden engines. This equipment was sufficient to provide top overhaul service.

The Dresden Aviation Company intended that the gross margin allowed distributors and service stations should be liberal in order to attract capable management of strong financial standing.

Both distributors and service stations were encouraged to sell such noncompeting products as airplane accessories, but the company required that the servicing of Dresden engines should not be subordinated to other activities. Distributors and service stations also were permitted to provide service for all makes of engines, but could not advertise themselves as official service representatives of any other airplane engine manufacturer, nor could they accept a service franchise from a competing engine manufacturer.

Distributors and service stations of the Dresden Aviation Company carried out the terms of the guaranty on Dresden engines, which provided that any defective part would be replaced free of charge. They were reimbursed by the company at the rate of \$2.00 an hour for all work performed in fulfilling the terms of the guaranty. The number of hours of labor required for each operation was agreed upon in advance. To provide further service facilities, especially on work covered by the company's guaranty, the Dresden Aviation Company increased the number of its field mechanics to 30. Their work was largely advisory, and consisted of supervising the repairs by distributors and dealers. No charge was made for their services, but they were authorized to make use of distributors' or dealers' tools without payment.

As of November 15, 1929, the Dresden Aviation Company had appointed eleven Dresden parts distributors; with the approval of the Dresden Aviation Company, 51 Dresden approved service stations had been appointed. Two distributors had not appointed service stations at this time.

Only three of the Dresden parts distributors were engaged in no outside activity other than the sale of accessories. Of the remaining eight, four were companies which sold accessories and airplanes and operated school and taxi services, and four were subsidiaries of regular transport line operators, engaging in activities similar to those of the independent companies. Although

none of these eight distributors conformed fully to the Dresden Aviation Company's preconceived standards, the company believed that it could depend upon them to give impartial service of high quality to all users of Dresden engines. In the first place, executives of the Dresden Aviation Company were thoroughly acquainted with the characteristics and attitudes of the distributors, and were convinced of their good faith and ability. In the second place, the Dresden Aviation Company was in constant personal touch with its distributors through trips made by executives and through its travelling service men; the latter were, moreover, in a very favorable position to hear of complaints on the quality of the service rendered. In the third place, the company believed that each of the distributors regarded Dresden engine service as his principal activity, and the Dresden franchise as his most important asset.

In order to meet the argument of transport lines that those operators possessing a Dresden distributorship, because of their ability to purchase Dresden spare parts at a 40% discount, were in a better competitive position than the operators not holding a Dresden franchise, the Dresden Aviation Company insisted that such a transport line carry on its Dresden distributing and servicing functions through a company subsidiary to the operating company. Thus the operating company would receive its spare parts at no more than the usual 10% discount granted to such customers.

Dresden approved service stations were not given exclusive territories, although in appointing these stations the distributors attempted to assure to each a reasonable volume of business. These retail service stations ordinarily engaged in the sale of planes and accessories and in school and taxi operations, as well as in the sale of Dresden spare parts and the servicing of Dresden engines. The principal distinction between the business carried on by the distributor and that carried on by the service station was in the volume of sales. The distributor usually had a larger volume of sales than the service station, and his plant usually represented a larger investment.

In order to encourage spare parts distributors to use highly trained mechanics, the Dresden Aviation Company offered a training course at the factory. The course lasted from three to six weeks, depending upon the previous experience of the student.

No charge was made for the course and the students did not receive any remuneration from the Dresden Aviation Company. Nor were they reimbursed for their expenses. Service stations might send their mechanics to the factory for training by applying through their respective distributors.

COMMENTARY: In undertaking to establish an effective system of service facilities for civilian users of its airplane motors, the Dresden Aviation Company faced a problem fraught with unusual difficulties. The company had not only to deal with current conditions but had also to weigh the long range effects of growth of the industry. The direction and nature of this growth were by no means easily or accurately predictable. Questions were involved as to what type or types of buyer would become dominant; how rapid and extensive would be the growth of civilian demand; whether airplane motors would keep their separate identities or be merged with the planes in which they were installed; to what extent mergers, consolidations, and other changes of ownership would take place throughout the industry; and whether radical changes would be made in the locations of airports.

Under these conditions, the Dresden Aviation Company had to choose between a passive, waiting attitude in its marketing program and an aggressive attitude based on confidence in its ability to stimulate growth of aviation and, simultaneously, growth of its own business. The company chose the latter policy and already had decided that the burden of providing motor service could not be assumed by the manufacturers of Dresden-powered airplanes. That decision was correct in view of the following salient characteristics of the aviation industry in 1929:²

(1) Airplane manufacturers typically did not produce their own motors and consequently lacked the experience, equipment, and personnel necessary for establishing service agencies competent to care for motors.

(2) Airplane motors unquestionably were recognized as distinct from the planes into which they were assembled; purchasers of airplanes, therefore, attributed the primary responsibility for motor performance to the motor manufacturers.

(3) Since competent servicing of motors was essential to safety of flight and therefore to expansion of the market for airplanes, salability of Dresden motors was in large measure dependent on ability to assure buyers that adequate service facilities would be available.

² See *Introductory Survey*, pp. 15-18.

In selecting the type of service organization to establish, the company acted on the premise that the chief demand for airplanes would come eventually from business firms and private users rather than from transport lines.³ The validity of this premise could not be proved; to have some definite belief on this point, nevertheless, was necessary for the formulation of consistent policies. In view of its premise, the Dresden Aviation Company's decision against use of transport lines as service agencies was logical; although as operators of fleets of planes, many of the transport lines already maintained substantial service facilities of their own and doubtless would have welcomed an opportunity to obtain Dresden service franchises, such lines almost inevitably would subordinate outside service jobs to the requirements of their own planes.

Apparently appointment of flying schools, which like transport lines usually operated fleets of planes and had some repair facilities, was not considered specifically. Since these flying schools in most instances also sold one or several makes of airplanes, they were not suited to act as service representatives for a company whose chief civilian customers were airplane manufacturers competing among themselves. The preferential interest of the flying schools in the planes they sold would have made manufacturers of other planes reluctant to have their products serviced by those agencies. In the absence of more precise data, the Dresden Aviation Company's reasons against appointment of automobile or automobile parts dealers, airplane supply companies, and spare parts warehouses, moreover, may be accepted as conclusive.

The problem of organizing a system of agencies to perform service functions for Dresden motors in all planes, regardless of make, was narrowed therefore to the question whether the Dresden Aviation Company should build its field service organization around a backbone of company-owned fully equipped primary branches in the main centers of aviation activities or should seek independent firms to concentrate on the performance of the duties of such primary branches. In either event, a fringe of independent retail service agencies in the territory surrounding each primary branch was desirable.

Direct control by the company over its primary service units was highly desirable, in order that uniform, well-formulated service policies, satisfactory to plane manufacturers and users, could be put into effect; in order that the company should have as much direct contact as possible with airplane users; and in order that permanence of each primary service agency might be assured. With direct control of its own

³ For case of a motor manufacturer holding an opposite view, see Pratt & Whitney Aircraft Company (A), pp. 47-53.

main service stations, the company could have avoided the danger that motor service would be subordinated to other activities, a danger that the company recognized in connection with its decision against appointment of transport lines as service representatives. Although seeing the inherent desirability of establishing its own primary branches at key centers throughout the United States, the Dresden Aviation Company decided against that policy for reasons of expense, delay, difficulty of securing competent branch managers, and risk of antagonizing local airplane firms. Of these reasons, expense was perhaps the controlling factor. The company believed that for at least some time to come the Dresden wholesale service distributorship would be in itself unprofitable, though lending sufficient prestige to the firms securing it to yield an indirect profit through promoting the sale of other lines, if other lines were carried.

The conclusion reported in the case was based on an incomplete analysis. In the first place, the company overlooked the fact that use of the Dresden franchise by distributors as a means of promoting other activities might lead to undesirable subordination and irregularity of Dresden service. Second, it is not clear that the franchise really was unprofitable or that the company itself could not have operated primary branches at a profit within a reasonable time.

Ordinarily, use of company-owned branches is avoided when it is clear that independent merchants, handling a wider line than that of any one manufacturer, can perform the distributive functions more economically than can a manufacturer's sales branch.⁴ In the present case, however, even if independent service agencies could have operated more economically than factory branches, there was still the important question of securing uniform and dependable service for such highly specialized and technical products as Dresden motors. Without such service, sales of Dresden motors would be seriously hampered, and it would have been to the company's advantage to bear some loss, if that was unavoidable, in order to assure itself of the required excellence of field servicing. Losses of this nature could well have been regarded as essential sales promotional expenses, especially since the closest possible contacts between factory and users were desirable.⁵

Before a final decision against establishment of company-owned primary service branches was reached, further study should have been made of the probable profitableness or unprofitableness of such branches, the analysis showing for each branch the estimated annual revenue from service work and from sales of parts; the capital required; and the operating expenses necessary to effective operation. For the

⁴ See Tuxbury Chain Company, 3 H.B.R. 3; Collis Belting Company, 3 H.B.R. 10.

⁵ Compare cases of the Keane Motor Car Company, 3 H.B.R. 15; and Stetlow-Carroll Company, 3 H.B.R. 37.

purpose of illustration, an analysis of this kind is shown below; the figures are estimates derived from statements recorded in the case and from assumptions made on the basis of general information regarding the period from July, 1929, to July, 1930. Ten factory-owned branches offering all types of service for Dresden motors, and selling spare parts to fleet operators and service dealers, are assumed to have been sufficient for this period. The land and buildings are assumed to have been rented rather than purchased, and to have been no more pretentious than necessary. It is also assumed that the company's branches would do half the complete overhauls needed on Dresden motors, the other half being done by transport lines and other fleet operators; and that the branches would do one-third of the top overhauls, the other two-thirds being done by service dealers, fleet operators, or others.

ANALYSIS, SERVICE BRANCH OPERATIONS

A. Use of Dresden Motors, July, 1929-July, 1930

	Transport Lines	Other Commer- cial Operators	Business Firms & Private Users	Total
Dresden Motors in Use.....	1,000	900	600	2,500
Annual Flying Hours per Motor.....	750	600	250	1,600
Complete Overhauls per Motor.....	2	2	1	5
Complete Overhauls per Class of Use.	2,000	1,800	600	4,400
Top Overhauls per Motor.....	3	1	1	5
Top Overhauls per Class of Use.....	3,000	900	600	4,500

B. Bases for Sales and Parts Data

	Average Costs	Average Mark-up	Average Selling Prices
1. Overhauls:			
Complete			
Labor, 75 hours @ \$2.....	\$150	25%	\$50
Parts.....	150	25%	50
Top			
Labor, 15 hours @ \$2.....	\$ 30	25%	\$10
Parts.....	30	25%	10
2. Service Sales (Billed Labor on Repair Jobs):			
Complete Overhauls ($\frac{1}{2}$ of 4,400; see "A" above):			
$2,200 \times \$200 =$			\$440,000
Top Overhauls ($\frac{1}{3}$ of 4,500; see "A" above):			
$1,500 \times \$40 =$			60,000
Total Service Sales.....			\$500,000
3. Parts Sales:			
(a) Billed Parts on Branch Repair Jobs for:			
Complete Overhauls ($\frac{1}{2}$ of 4,400; see "A" above)			
$2,200 \times \$150 =$	\$330,000	Cost	
25% Mark-up =.....	110,000		\$440,000
Top Overhauls ($\frac{1}{3}$ of 4,500; see "A" above)			
$1,500 \times \$30 =$	\$ 45,000	Cost	
25% Mark-up =.....	15,000		60,000
Total Billed Parts on Branch Repair Jobs.....			\$500,000

(b) Billed Parts Sold to Outsiders for:

Complete Overhauls ($\frac{1}{2}$ of 4,400; see "A" above)			
2,200 × \$150 =	\$330,000	Cost	
20% Ave. Mark-up.....	82,500		\$412,500
Top Overhauls ($\frac{2}{3}$ of 4,500; see "A" above)			
3,000 × \$30 =	\$90,000	Cost	
20% Ave. Mark-up.....	22,500		112,500
Total Billed Parts Sold to Outsiders.....			525,000
Total Parts Sales.....			\$1,525,000

C. Branch Net Profit Calculation

1. Estimated Consolidated Merchandise Statement, 10 Company-owned Branches
July, 1929-July, 1930

	10 Branches	1 Branch
Service Sales (from B, 2).....	\$ 500,000	\$ 50,000
Parts Sales (from B, 3).....	1,025,000	102,500
Total Net Sales.....	\$1,525,000	\$152,500
Cost of Parts Sold (from B, 3).....	795,000	79,500
Gross Margin.....	\$ 730,000	\$ 73,000

2. Operating Statement, Typical Branch

Net Sales.....	\$152,500	100.00%
Gross Margin.....	73,000	47.87%
Executive Salary (Manager).....	\$ 4,500	2.95
Office Salaries & Wages.....	2,000	1.31
Salesman.....	3,600	2.36
Wages of Mechanics		
6 @ \$3,000.....	\$18,000	
4 @ \$2,000.....	8,000	
	26,000	17.05
Wages of Pilot.....	4,200	2.75
Service Airplane, Depreciation, etc.....	1,300	.85
Supplies, Telephone, etc.....	750	.50
Rent.....	4,500	2.95
Interest on Branch Capital:		
Airplane.....	\$ 3,000	
Parts.....	20,000	
Fixtures.....	500	
Tools.....	5,000	
	\$28,500 @ 6%	
	1,710	1.12
Total Expense.....	\$ 48,560	31.84%
Net Profit.....	24,440	16.03%

In the foregoing analysis, expenses have been put at fairly high levels. No income has been shown, furthermore, for service work on other makes of motors, although many opportunities probably would arise for servicing other motors. There is, therefore, substantial latitude for failure of sales and gross margin to meet expectations. Even had the company incurred some loss during the period involved, however, it would have been well repaid for the establishment of its own branches through the stimulus to sales of motors and through the advantages of close contact with users of Dresden motors.

The capital required, about \$30,000 per branch, or some \$300,000 in all, should have represented no great obstacle to a company with annual sales of around \$10,000,000. Capable managers doubtless could have been selected for training from among the company's techni-

cal and sales personnel. With regard to the intangible factor of local pride and self-interest as a cause of antagonism to factory-owned branches, it is difficult to believe that owners of airports and firms engaged in airplane sales at the key centers selected for Dresden service branches would have shown any permanent resistance to a branch policy which provided for the renting of real estate and the standardization of motor service.

July, 1930

C. I. G.

18. PRATT & WHITNEY AIRCRAFT COMPANY (B)¹

MANUFACTURER—AIRCRAFT ENGINES

DISTRIBUTION CHANNELS—*Selection of Type of Servicing Organization.*

When a manufacturer of aircraft engines whose commercial use was principally in the airplanes of transport lines decided to establish a nation-wide system of service stations and spare parts dealers, it considered four types of servicing organization: factory branches; airplane distributors and dealers; independent service stations; and transport lines. The company decided to appoint air transport lines as service stations and spare parts distributors, chiefly because the more important lines already possessed some servicing facilities, and because this type of servicing organization could be expanded indefinitely if need be.

(1928)

Since its inception in 1925, the Pratt & Whitney Aircraft Company of Hartford, Connecticut, had manufactured aircraft engines of large horsepower. The company sold its engines to the United States Government and to airplane manufacturers who used them in planes sold to individuals and to commercial operators of aircraft. In the fall of 1928, because of the rapid growth of civil air operations, the Pratt & Whitney Aircraft Company decided to establish a nation-wide system of service stations and spare parts dealers in order to provide efficient maintenance service for commercial users of its engines. To carry out this plan, it became necessary to decide which one of four possible types of servicing organization to employ: (1) factory branches; (2) airplane distributors and dealers; (3) independent service stations; (4) transport lines.

The Pratt & Whitney Aircraft Company was founded in August, 1925, as a subsidiary of the Niles-Bement-Pond corporation and was distinct from the Pratt & Whitney Company, another subsidiary of the Niles-Bement-Pond Corporation and a manufacturer of precision tools. Early in the fall of 1928, the United Aircraft & Transport Corporation, a large aviation holding company, had obtained control of the Pratt & Whitney Aircraft

¹ See also Pratt & Whitney Aircraft Company (A) and (C), pp. 47 and 225.

Company. In 1928, the company's sales had been approximately \$8,000,000, and it was expected that total sales in 1929 would exceed \$12,000,000.

The Pratt & Whitney Aircraft Company's line of products consisted of 2 types of fixed radial 9 cylinder air-cooled engines; the "Wasp" engine developed 420 horsepower, and the "Hornet" 525 horsepower. From the start, the company's products had established a reputation for dependability and quality, and by the fall of 1928 the company had become one of the largest manufacturers of high-powered aircraft engines.

The company stated that, in the United States, its products met with little effective competition. The Wasp engine was the only air-cooled motor of a horsepower rating at some point between 320 and 480 that was being produced in quantity, and its sales exceeded by far the total of all competing makes. Only one air-cooled motor of the 500 to 600 horsepower class could be said to compete with the Hornet, and the Pratt & Whitney Aircraft Company stated that the competing motor failed even to approach the Hornet in volume of sales. During the first two years and a half of the company's existence, practically its entire output had been used by airplane manufacturers in planes built for the United States Army and Navy. In 1928, however, the demand for Wasp and Hornet aircraft engines for use in civil air operations increased greatly, and by the end of that year nearly 400 Pratt & Whitney engines were in civil use. Because of the large horsepower and consequent high price of Pratt & Whitney engines, civilian users were confined almost entirely to regular transport line operators, who purchased the engines from plane manufacturers as installations in new planes or separately as replacements for those engines which had worn out. The plane manufacturers purchased engines direct from the company.

The products of the Pratt & Whitney Aircraft Company had been restricted intentionally to high-powered engines. Executives of the company were somewhat skeptical of an extensive development in the use of airplanes by individuals for sport or for pleasure. They disagreed with the contention of others in the industry that the use of planes for sport and pleasure flying was the largest potential market and that this market would be developed when the cost of learning to fly and of owning a plane was reduced.

In the opinion of executives of the Pratt & Whitney Aircraft Company, the market for airplanes was inelastic. They believed that the average individual failed to purchase a plane for private use not because of cost, but because of a more fundamental reason: it was not an article of general utility. The Pratt & Whitney Aircraft Company held that the airplane was, primarily, a means of providing fast transportation between relatively distant points. The average airport was located several miles from the business district of a city, and it sometimes required as much as an hour to reach this district from the airport. As a result, except on air lines covering a distance of several hundred miles, the time saved in actual flight was largely or entirely offset by the time consumed in traveling to and from the airport. Consequently, the average individual could expect to save little time on short trips by the use of an airplane, and on the few long trips he was likely to make, it would be cheaper to patronize an air line than to own a private plane.

The probable future development in the use of planes by private individuals had often been compared with the development of the automobile as a pleasure vehicle; but with this comparison executives of the Pratt & Whitney Aircraft Company disagreed. In the first place, they said, it was much more difficult to learn to fly a plane than to learn to drive an automobile. Granting, however, that the average individual could learn to fly, there still remained the question of where he would go with his plane. His acquaintances and friends were likely to be within a comparatively short distance of his home, and the scarcity and inconvenient location of airports precluded the use of the plane for visiting them. The same conditions were encountered in commuting to and from work by plane. Purely pleasure flights were enjoyable for a short time, but, reasoned the executives, they became monotonous if the time was extended. Under the conditions set by the stage of development of the airplane in 1929, then, the executives of the Pratt & Whitney Aircraft Company doubted its utility to the average individual; and they believed there was little indication of technical developments which would change these conditions in the near future.

Because of this belief that the future of air transportation lay, principally, in commercial operations, the Pratt & Whitney Aircraft Company had decided not to manufacture engines of

low horsepower, but rather to concentrate on the production of engines adapted to the use of commercial air transport lines operating on regular schedules. In the fall of 1928, over 90% of the Wasp and Hornet engines in civilian use were installed in planes owned by air transport companies operating over fixed routes on regular schedules. The remaining engines were installed in planes used by individuals for pleasure, by business companies operating planes for the transportation of executives and salesmen, and by fixed-base operators engaged in the operation of schools and taxi services and other flying activities. Because of the relative unimportance of private, business, and fixed-base operations to the Pratt & Whitney Aircraft Company, the company in providing servicing facilities and spare parts distribution was concerned primarily with the needs of air transport operators.

Air transport operators carried either mail, passengers, or express, or combinations of the three. In ordinary operations, an engine might be flown from two to eight hours a day. Because of the intensive use of engines in such operations, overhauls were needed relatively frequently, although the overhaul policies of different transport companies varied. Some overhauled their engines completely at intervals of less than 200 hours of flying time, and others extended these intervals to as much as 600 hours. From 100 to 200 hours of skilled labor were necessary for each overhaul, the exact time required depending on the interval between overhauls; the cost of such labor varied, but was commonly from \$1.50 to \$2.00 an hour. The cost of spare parts in each overhaul varied widely according to whether the engine was new or almost worn out; in the former case, it might be negligible, but in the latter case it might exceed \$1,000.

The Pratt & Whitney Aircraft Company made little distinction between light and heavy overhauls. It believed that each engine should receive a thorough inspection when work of any character was done on it, in order to insure dependable operation. The company also was attempting to convince air transport operators that frequent overhauls and inspections were more economical in the long run than those made infrequently, since engine failures were avoided and since the life of the engine as a whole was prolonged. The company recommended that Wasp and Hornet engines be given an "inspection check," which included a thorough inspection without tearing down the motor,

together with any necessary replacement of parts, after every 50 hours of flying time. A thorough overhaul, involving tearing down the motor, inspection and replacement of parts, and testing after reassembly, was thought necessary at intervals of from 300 to 400 hours of flying time.

Prior to the fall of 1928, the Pratt & Whitney Aircraft Company had no formal servicing organization, although it supported a small force of traveling mechanics who visited air transport operators to advise them on methods of repairing Wasp and Hornet engines. Most air transport operators maintained one or more service stations, each at an important point on the line. These stations carried small stocks of those parts which required frequent replacement, spare engines, and a number of the more commonly used tools. Special tools and expensive spare parts for Wasp and Hornet engines rarely were carried by these service stations. Most transport lines using Pratt & Whitney engines returned the engines to the factory in Hartford for all but minor overhauls and sent to the factory for all but the most commonly used spare parts, meanwhile using spare engines to replace those temporarily out of service. For example, the bearing of the master connecting rod on an engine required rebabbiting after every 500 hours of service. To perform this operation correctly necessitated the use of special tools valued at several thousand dollars. It was more economical, therefore, for an airline operator to carry replacement engines and to send engines in need of major repairs to the factory than it was to maintain an expensive set of tools purely for his own operations. The operator might effect economies in time and transportation charges, however, by performing his own installations on parts requiring less expensive tools. Preferred operators, those companies maintaining large fleets of planes, were granted a discount of 15% on spare parts for Pratt & Whitney motors; other commercial operators were granted 10%; and individuals or firms using aircraft incidentally paid the list price.

This repair system on the whole had been slow and costly to the operator. The Pratt & Whitney Aircraft Company was convinced that, by providing a nation-wide servicing and spare parts distributing organization, it could reduce the expense to operators of servicing Wasp and Hornet engines, and thus increase the popularity of these engines among operators of air transport

lines. For this purpose there were four possible types of organization: factory branches; airplane distributors and dealers; independent service stations; and transport lines.

Of the four possible methods of providing service and spare parts distribution, only two were given serious consideration. Few of the plane manufacturers to whom the Pratt & Whitney Aircraft Company sold its products employed dealers and distributors; most planes of the type made by these manufacturers, a type that was adapted principally to regular transport operations, were sold direct to users. Even if such a distributing system were available, however, the Pratt & Whitney Aircraft Company doubted its effectiveness as an engine servicing organization. Since most plane manufacturers furnished a choice of several motors with their planes, they would expect their distributors and dealers to service any of those makes. The Pratt & Whitney Aircraft Company believed, however, that its servicing organization should, in order to provide service of high quality, concentrate its efforts on Wasp and Hornet engines.

The use of independent companies already engaged in servicing engines and selling spare parts was also given scant consideration. So far as the Pratt & Whitney Aircraft Company could discover there were few companies of this type in existence, and those few were small and poorly equipped, with insufficient capital to purchase additional equipment. In order to function properly, a service station, the company estimated, should carry a stock of spare parts valued at approximately \$20,000 and should have \$18,000 invested in ordinary tools and in special tools for Wasp and Hornet engines. Even if an independent company were able to provide this capital, it would be forced to charge high prices for service and spare parts in order to earn a return on the small volume of business which was available; this policy would conflict with the Pratt & Whitney Aircraft Company's desire to furnish commercial users of its engines with service at the lowest possible cost.

The final choice in selecting a servicing and spare parts distributing organization appeared to lie between the use of company-owned factory branches and the use of transport lines. The outstanding advantage which factory branches offered was that service could be closely and directly controlled. The Pratt & Whitney Aircraft Company would then be solely responsible for

the quality of the service rendered, and it could take any steps which it believed justified in assuring such quality.

The principal disadvantage of using company-owned factory branches appeared to the company to be the large capital expenditure which would be necessary. The company estimated that it would have to establish from 15 to 20 branches within a short time in order to provide the required service and spare parts distributing facilities. Including a stock of tools and spare parts valued at from \$35,000 to \$50,000 and the cost of providing a suitable hangar and landing space, the capital investment for each factory branch would exceed \$150,000. In addition, a force of at least 8 men would have to be maintained at each branch, regardless of the volume of business. The Pratt & Whitney Aircraft Company hesitated before committing itself to such a program when no more than 400 Wasp and Hornet engines were in commercial operation in the United States; with such a small volume of business, the factory branches could not hope to meet current expenses, to say nothing of meeting fixed charges and returning a profit.

The use of transport lines operating planes equipped with Pratt & Whitney engines appeared to have several advantages over any other method of organizing service stations and spare parts distributors. In the first place, the more important operators already possessed such servicing facilities as a hangar, landing space, and the ordinary tools required for routine maintenance work; in addition, a few had special tools for Pratt & Whitney engines. In many cases, therefore, little additional investment would be necessary, and this probably would be provided willingly with the inducement of an increased discount on spare parts. The same inducement probably would be sufficient to lead air line operators to stock a complete set of spare parts and to make the necessary additions to personnel. Moreover, the Pratt & Whitney Aircraft Company had encouraged air line operators using its engines to send their mechanics to Hartford for a free course of instruction, with the result that most of these operators were employing factory-trained men in the repair of engines.

Were this plan adopted, those operators designated as service stations would be selected on the basis of their operating efficiency, which, the Pratt & Whitney Aircraft Company believed, was an excellent indication of the quality of the service rendered on their

own engines. An additional consideration would be the extent of the transport line's use of Wasp and Hornet engines. The service station would, therefore, start its business with the confidence of other operators, with a good name, and with previous experience in working closely with the Pratt & Whitney Aircraft Company.

Finally, since transport lines reached practically every city of aeronautical importance and since most of them used Pratt & Whitney engines at least in part, while many of them used these engines exclusively, the servicing organization could be expanded indefinitely as the need arose. Until such time as all cities were provided with Pratt & Whitney service, spare parts, small tools, and mechanics could be transported quickly from one city to another by the air lines' regular planes.

One objection to the use of air transport operators as service stations and spare parts distributors was that a line operating in competition with one possessing a Pratt & Whitney franchise might claim that it was being discriminated against; as evidence, it might point to the larger discounts which the competitor was allowed on spare parts and claim that those discounts made it possible for the second company to operate at lower cost. In such a case, there was a possibility that the disgruntled operator would accept the franchise of a competing engine manufacturer or refuse to use Pratt & Whitney engines.

Another objection to the use of transport operators was that they might accept the Pratt & Whitney franchise only to obtain a greater discount on spare parts, and fail to take the necessary interest in providing adequate service for others.

Despite the disadvantages of designating air transport operators as service stations and spare parts distributors, the Pratt & Whitney Aircraft Company decided to make use of them. The objection to use of factory-owned branches was insurmountable, since the company was not willing to furnish the necessary capital; the difficulties offered by the use of transport lines seemed of minor importance.

The objection based on the claim of discrimination did not appear to be important. In the opinion of executives of the Pratt & Whitney Aircraft Company, transport operators chose engines on the basis of quality, and, when purchasing a new plane or when purchasing engines for replacement, specified that engine

which gave the most dependable service at the lowest cost. The company believed that the quality of its products exceeded that of any competitor; furthermore, the service offered, even if it were that of a competing transport line, would be quicker and less costly than that obtained by shipping engines and spare parts to and from the plant at Hartford. Finally, there were few directly competing transport lines; several might have headquarters in a single city, or several might stop at the same city, but routes and destinations usually were different.

The Pratt & Whitney Aircraft Company was confident that by a careful selection of transport lines it could prevent poor service to other companies. As a secondary safeguard, all franchises were to be renewed each year, agreements could be abrogated by either party on 60 days' notice, and the company reserved the right to appoint one or more additional service stations in a city at any time. No exclusive territories were to be granted and each service station was to obtain as much business as it could, although the Pratt & Whitney Aircraft Company would make a verbal agreement with each transport line not to appoint other service stations in the same city if the original company demonstrated its ability to provide satisfactory service for the available business.

Acceptance of a Pratt & Whitney franchise would give a transport line the right to maintain Pratt & Whitney service stations only in those cities named in the contract, not at all points on its route. A transport line could establish other service stations along its route, but these could not be authorized Pratt & Whitney service stations. It was unlikely, however, that an operator would establish other stations, since, in general, the number of Pratt & Whitney franchises granted to an operator would be sufficient to cover the cities on the line at which repairs were performed.

Following this decision, the company's discount schedule on spare parts was arranged as follows:

Individuals and companies using aircraft incidentally.....	list
Those obtaining the major part of income from the operation of aircraft (small transport operators, fixed-base operators, aerial service companies).....	10%
Preferred fleet operators (large transport lines).....	15%
Airplane manufacturers.....	15%
Authorized service station and spare parts dealers.....	33 $\frac{1}{3}$ %

The larger discount granted to dealers was thought to be justified because they relieved the Pratt & Whitney Aircraft Company of the cost of maintaining a large inventory of spare parts and of making many shipments of small unit value. No definite line was drawn between the ordinary fleet operator and the preferred fleet operator, beyond the fact that the latter class consisted of outstanding companies. The preferred fleet operators in 1929 were Transcontinental Air Transport, National Air Transport, Western Air Express, and Colonial Airways. Under the new plan the Pratt & Whitney Aircraft Company would continue to sell spare parts from the factory at the list prices and would continue to provide service of any kind. Because of time and cost considerations, however, it almost invariably would be cheaper for a transport operator to obtain his service and spare parts at Pratt & Whitney service stations.

The following form of contract between the dealer and the Pratt & Whitney Aircraft Company (termed "Aircraft") was adopted:

WHEREAS Aircraft manufactures Wasp and Hornet aircraft engines and spare and replacement parts for such engines and Dealer uses the same in its own business, maintains a service station or stations and requires such parts for its own use, for sale and for service to its customers;

NOW THEREFORE, in consideration of One (1) Dollar and their mutual promises as hereinafter contained, the parties hereby agree as follows:

OBLIGATIONS OF AIRCRAFT

(1) During the term hereof Aircraft will keep Dealer supplied with its spare part catalogues and price lists of the engines mentioned above but nothing herein shall prevent Aircraft from changing its prices for its product from time to time without previous notice, irrespective of catalogue quotations.

(2) Aircraft will sell to Dealer, the latter's credit being satisfactory to Aircraft, such spare parts as Dealer may require for its own use and that of its customers, f.o.b. Hartford, Connecticut, at Thirty-three and one-third ($33\frac{1}{3}$) per cent discount from its prices in force at time of receipt of orders. Terms thirty days.

(3) No like discount for such spare parts shall be given by Aircraft to other purchasers thereof than Dealer except to customers holding similar contracts, Aircraft's own distributing agencies, if any, and the Government of the United States.

(4) Aircraft will make no adjustments direct with Dealer's customers on product claimed to be faulty without full knowledge of Dealer.

(5) Aircraft will keep a reasonable number of qualified men in service at fairly convenient points whom Dealer may call upon at Aircraft's expense to assist its own service agents in inspection and supervision of repairs to and replacements of Dealer's own engines and those of customers serviced by it.

(6) Aircraft will, in case of termination by Aircraft as provided in paragraph 12 of this contract, accept for full credit all parts then in stock and purchased within the year preceding date of cancellation.

OBLIGATIONS OF DEALERS

(7) Dealer will purchase from Aircraft or Aircraft's authorized dealers, from time to time and carry in stock adequate stores of spare parts to meet, in Aircraft's opinion, after interchange of information and views with Dealer, all of the latter's requirements and those of its customers as above described, and will also provide proper space, equipment, labor and superintendence for the overhaul and/or repair of engines made by Aircraft that may be called for by the users thereof at and at any other places on its route where Dealer may choose to maintain this service. Dealer will keep at such stations at least one competent factory trained mechanic and/or competent mechanic other than factory trained, whose abilities and work are satisfactory to Aircraft.

(8) Dealer will make no contract commitments for replacements of parts involving Aircraft, but will charge its customers and collect full list prices or full net prices according to discounts to customers as permitted by paragraph (10) hereof. All parts replaced which are subject to controversy Dealer will return to Aircraft, transportation charges prepaid, for adjustment with full reports of defects complained of, particularizing time, place and conditions of use, if any, when, where and whereby alleged defects in such parts appeared. Adjustments, however, will be made by Aircraft through Dealer.

(9) Dealer will furnish to Aircraft's representative when he is at the station or stations of Dealer on business, stenographic and any other convenient assistance.

(10) Dealer will sell to such fleet operators of aircraft transportation as Aircraft may specify spare parts and replacements at discounts from Aircraft's prices as specified in paragraph 1 hereof, not to exceed, however, discounts of fifteen (15) per cent from such prices. All other sales of such spare parts and replacements shall be made by Dealer at full list prices.

GENERAL SPECIFICATIONS

(11) This agreement is not an agency contract and is not assignable or transferable. It is executed in Connecticut and shall be construed by Connecticut law.

(12) This agreement shall be in force for a year from date and thereafter from year to year unless sooner terminated. It shall be terminable by either party upon sixty (60) days' prior written notice.

(13) This agreement covers spare parts and service only and does not apply to the purchase or sale of complete engines. It shall involve no exclusive territorial rights given to Dealer and contains all the terms agreed upon between the parties and is subject to no modification by any representative of either party except by written memorandum signed by executive officers of both parties.

By December, 1929, the Pratt & Whitney Aircraft Company had built up an organization consisting of service stations in 21 cities in the United States maintained by 9 transport lines. In addition, the company maintained complete servicing facilities at Hartford. At that time, nearly all the service stations carried complete sets of both ordinary and special tools as well as complete stocks of spare parts; it was expected that complete equipment in all service stations would be installed in a short time. Insofar as the company was aware, no serious difficulties had been encountered in the operation of the servicing organization and no protests from competitors of the company's service agencies had been received. Those transport lines appointed as Pratt & Whitney dealers were said to be uniformly satisfied with the arrangement.

Close supervision of the quality of the service rendered by service stations was maintained by means of the company's executives, the service manager, the field mechanics, and the company salesmen. All were in close personal contact with other companies in the aviation industry and were in an excellent position to hear of complaints. Any complaints received were reported to the service manager; it was his duty to take such action as appeared to be desirable.

The list of Pratt & Whitney authorized parts and service dealers, as of December, 1929, follows:

PRATT & WHITNEY AUTHORIZED PARTS AND SERVICE DEALERS

Location	Name
Chicago, Ill.	Universal Aviation Corporation
St. Louis, Mo.	Universal Aviation Corporation
Kansas City, Mo.	Universal Aviation Corporation
Wichita, Kansas.	Universal Aviation Corporation
Brownsville, Texas.	Pan American Airways, Inc.
Cristobal, Canal Zone.	Pan American Airways, Inc.
Los Angeles, Calif.	Maddux Air Lines, Inc.

San Francisco, Calif.....	Maddux Air Lines, Inc.
Tulsa, Okla.....	Southwest Air Fast Express, Inc.
Omaha, Neb.....	Boeing Air Transport, Inc.
Cheyenne, Wyoming.....	Boeing Air Transport, Inc.
Salt Lake City, Utah.....	Boeing Air Transport, Inc.
Reno, Nevada.....	Boeing Air Transport, Inc.
Oakland, Calif.....	Boeing Air Transport, Inc.
Portland, Oregon.....	Pacific Air Transport, Inc.
Seattle, Wash.....	Pacific Air Transport, Inc.
Los Angeles, Calif.....	Aero Corp. of California, Inc.
El Paso, Texas.....	Aero Corp. of California, Inc.
Detroit, Mich.....	Stout Air Services, Inc.
Cleveland, Ohio.....	Stout Air Services, Inc.
St. Paul, Minn.....	Northwest Airways, Inc.
Miami, Florida.....	Pan American Airways, Inc.
Hartford, Conn.....	The Pratt & Whitney Aircraft Co.
Longueuil, P. Q., Canada.....	The Canadian Pratt & Whitney Aircraft Co., Ltd.

COMMENTARY: This case involves the general factors previously discussed as to the importance of engines and engine service in the existing stage of development of the aviation industry. The Pratt & Whitney Aircraft Company's decision in this case was determined in large part by its previous decision to confine its products to aircraft engines of large horsepower for use primarily on transport lines, which decision, in turn, was governed by the company's conclusion that the airplane market was analogous to the market for automobile busses rather than the market for automobile pleasure cars. This case is therefore in direct contrast to the corresponding case of the Dresden Aviation Company (A).²

Of the four possible types of servicing organization, namely, (1) factory branches, (2) airplane distributors and dealers, (3) independent service stations, and (4) air transport companies, the second and third possibilities were practically removed from consideration because the market served by the Pratt & Whitney Aircraft Company consisted of air transport operators rather than of individual users of planes. Lacking experience in motor manufacture, plane manufacturers were not at this time in an effective position to render engine service to plane users. The first mentioned policy, that of direct factory branches, offered the theoretical advantage of close and immediate contact with users of the company's product during a period of critical importance in the development of the market. On the other hand, it is likely that the company could not have expected to cover by means of service charges the costs of operation of such direct factory service branches. Other pertinent reasons in favor of the company's decision to grant service and spare part franchises to air transport operators were as follows: (1) air transport operators in any event needed to carry a supply of spare parts and to maintain facilities for some minor servicing

² Page 172.

operations; (2) these companies were in a position to afford the substantial investment in parts and tools necessary to offer adequate service facilities.

The principal objections to the course followed by the Pratt & Whitney Aircraft Company in granting service and spare part franchises to air transport companies were as follows: (1) in the event that the company eventually found it desirable to go into the manufacture of engines for planes to be used by private owners, it would not be in as strategical a position to give effective service to such motors as was its chief competitor; (2) the difference in discounts in favor of authorized distributors constituted somewhat of a handicap to air transport companies using Pratt & Whitney motors who were not authorized service and spare parts distributors.

The first objection was largely nullified by the fact that the entire manufacturing and merchandising policy of the Pratt & Whitney Aircraft Company was based on the assumption that the air transport companies rather than individual users constituted the market of principal importance. Neither did the second objection appear to be a serious one in the existing stage of development of air transport operations, particularly in the absence of many directly competing lines. It appears, however, that the company should have given some consideration to the fact that if, in the future, numerous competing firms should enter the field of air transport operation, and if any other motor manufacturers should seriously seek to invade this field, then the Pratt & Whitney Aircraft Company's policy of granting service and spare part franchises to particular air transport operators might not work out satisfactorily either from the standpoint of giving the best service possible to all Pratt & Whitney motors or from the standpoint of cultivating goodwill as a means of sales promotion. The further possibility might also eventuate of losing some service and spare part distribution through the absorption of air transport companies by competitors of Pratt & Whitney.

The policy adopted by the Pratt & Whitney Aircraft Company in this case was, in general, consistent with the company's manufacturing policy and with the premises on which this policy was based. It appears, however, that this service policy was further predicated on the idea that rapid development of competing air transport companies would not take place, and that if such development did take place the Pratt & Whitney Aircraft Company would continue to dominate the air transport field without being seriously challenged by other engine manufacturers. From the standpoint of long-run policy it may be argued that the company should have given more serious consideration to the possibility of establishing direct factory service branches.

June, 1930

M. P. M.

19. DRESDEN AVIATION COMPANY (B)¹

MANUFACTURER—AIRCRAFT ENGINES

DISTRIBUTION CHANNELS—*Replacement Sales Made through Spare Parts and Servicing Organization.* To meet the increased demand for replacement engines which it believed would result from expansion in civil aviation, a manufacturer of aircraft engines decided to change its policy of making replacement sales solely through airplane manufacturers to one of making such sales through its nation-wide organization of spare parts distributors and service stations. This change was expected to overcome, at least in part, the disadvantages of the existing system, such as delay in filling orders, high costs of shipment, lack of installation equipment, price cutting, and lack of sales promotion.

(1929)

Prior to 1929, the Dresden Aviation Company had sold its entire production of aircraft engines for civilian use to airplane manufacturers. The latter built most of the engines into airplanes but sold some of them separately as spares or as replacements for engines which had worn out in use or had become obsolete. Replacement sales had been unimportant, because comparatively few modern aircraft engines had been long in use. In 1929, however, a rapid expansion in civil aviation had taken place, the ultimate result of which, executives of the Dresden Aviation Company believed, would be an increased demand for replacement engines. To meet this situation, in the latter part of 1929 the company considered supplementing its policy of selling replacement engines through airplane manufacturers by selling its motors also through its spare parts distributors and service stations.

The products of the Dresden Aviation Company, one of the largest manufacturers of aircraft engines in the United States, covered various important horsepower classes, from the 90-110 horsepower motor for small planes to the 525 horsepower motor for heavy transport planes. The company sold its engines direct to airplane manufacturers through salesmen and executives, who

¹ Fictitious name. See also Dresden Aviation Company (A), p. 172.

visited the company's customers at frequent intervals. The company's sales in 1928 had been approximately \$10,000,000.

Early in 1929, the Dresden Aviation Company had organized a nation-wide service and spare parts distribution system, which, it believed, was more complete than that of any of its competitors. Eleven Dresden spare parts distributors had been appointed in the United States, each intended to give all types of Dresden engine service and to carry a complete stock of Dresden spare parts for sale to users and to the Dresden service stations operating in the distributor's exclusive territory. Service stations were appointed by distributors with the approval of the Dresden Aviation Company; they performed light service on Dresden engines and carried a less complete stock of parts than did the distributors. The company also maintained a force of 30 traveling service men who serviced Dresden engines in accordance with the company's warranty and advised distributors and service stations on servicing methods.

The Dresden Aviation Company allowed distributors a 40% discount on Dresden spare parts; service stations were granted a 25% discount; companies operating aircraft for profit, such as transport lines and school and taxi operators, were granted a 10% discount; and all other purchasers paid the list price.

With proper care, Dresden aircraft engines gave from 1,500 to 2,500 hours of efficient operation. The average life of an airplane might be considerably longer than that of its motor, but obsolescence caused by rapidly developing technological improvements seemed to be a more important factor in the life of airplanes than in the life of motors. The Dresden Aviation Company believed, nevertheless, that the replacement engine market would become increasingly important within the next few years, possibly taking as much as 20% of the company's annual output of engines for civilian use.

Prior to 1929, the demand for replacement engines in civil air operations had come principally from air transport lines and from fixed-base operators. These companies usually maintained repair shops for light engine overhaul work and carried a small stock of spare parts and a few spare engines for replacement and for substitution during overhauls on other engines. Replacement sales to private airplane owners such as business companies and individuals had been almost negligible. In 1929, however, the

number of private owners had increased greatly, and the Dresden Aviation Company believed that a considerable demand for replacement engines would come from that group. Such plane owners rarely possessed servicing facilities of any description.

In the purchase of a replacement engine, the purchaser had strong reasons for buying the make of motor which was furnished as original equipment, providing, of course, that the engine had given satisfactory performance. An air-cooled motor could not be replaced by a water-cooled motor, because of the radical difference in the shape of the motor and, consequently, in the design of the airplane's fuselage. The same difficulty was encountered, to a lesser degree, in the replacement of one make of air-cooled motor by another; differences in the design of various types of air-cooled motors necessitated cowlings of varying design in order to assure proper cooling. Moreover, the engine mounting frame of an airplane might be designed specifically for one make of motor and not be suited to another. The products of different engine manufacturers also varied somewhat in weight and in horsepower, and such differences caused a variation in the performance of the airplane. Thus, although the various makes of air-cooled engines were actually interchangeable, the time and expense necessary to make the change from one product to another precluded such a course of action, except as the result of unsatisfactory performance.

Somewhat offsetting this condition, however, was the fact that aircraft engines were being improved constantly and that such improvements often involved important changes in design. As a result, an aircraft owner might find it necessary to authorize changes in the fuselage of his airplane if he replaced his motor with one of modern design, even if the replacement engine were made by the same manufacturer. Replacement by an older type of motor would necessitate the manufacturer's carrying a stock of obsolete motors long after their sale as original equipment had been discontinued. Nevertheless, it was still true that, when a replacement purchase was under consideration, the purchaser ordinarily would turn to the product of the manufacturer who had built the original equipment.

Because of the user's tendency to replace his engine with another of the same make, the Dresden Aviation Company believed that little promotional effort was necessary to induce

users of the Dresden engines to make replacements with the same kind of motive power. This opinion was supported by the fact that the company's competitors had, up to this time, made no effort to extend replacement sales beyond the users of aircraft originally equipped with their engines.

In one respect, however, the Dresden Aviation Company believed that promotional effort to increase replacement sales might be highly desirable. Although commercial operators usually knew when an engine replacement was needed, individual owners and business companies generally lacked the technical knowledge necessary to ascertain this fact. Flight with a worn-out engine was dangerous because of the possibility of motor failure. Consequently, executives of the Dresden Aviation Company believed that any effort toward enlightening this group of customers on the necessity of engine replacements would be a valuable method of increasing sales and of creating goodwill. If the company called a user's attention to the need for replacement, it would be in a favorable position to make the replacement sale, even if the original engine were manufactured by a competitor of the Dresden Aviation Company. In making sales of replacement engines, it was necessary to observe stringently the United States Department of Commerce regulations which provided that, within narrow limits, the replaced engine must be of approximately the same power and weight as the engine previously installed.

Tools and equipment adequate to remove the old engine and install a new one, and an available stock of spare engines, were regarded as necessary for the successful promotion of replacement sales. When a replacement engine was needed, it was usually needed on short notice; a plane could not be flown safely with a failing engine. Commercial operators, especially transport lines, usually had the equipment necessary for installation and a stock of spare engines on hand; this was not true, however, of individual owners and business companies.

In view of this situation, the Dresden Aviation Company perceived serious objections to distributing its replacement engines through plane manufacturers only. Under that plan, private purchasers had been obliged to obtain new engines from the plane manufacturers' factories; the time required sometimes was several weeks. The cost of shipment also was heavy, since it was often necessary to pay for cross-freights and back-freights,

which would have been eliminated by shipment from the Dresden factory direct to a distributing point near the user. Moreover, in the past it had often been difficult for the individual plane owner to find available installation equipment within a convenient distance, since only transport lines, fixed-base operators, and a few plane distributors maintained such facilities. This condition, however, had been practically eliminated so far as it applied to Dresden motors, with the establishment of the Dresden servicing organization in 1929.

Another difficulty in confining sales of replacement engines to airplane manufacturers arose from price cutting. Aircraft manufacturers were granted a 25% discount on all purchases of Dresden engines, with the expectation that they would sell replacement engines to transport lines and other commercial operators at a 10% discount, and to all other purchasers at the list price. In practice, however, a plane manufacturer was not seriously concerned about maintaining his 15% margin on sales to commercial operators, since he regarded replacement sales as costing him practically nothing, no effort being necessary in obtaining them. As a result, price cutting on replacement engines was prevalent. Commercial operators, especially large users such as transport lines, shopped around among the various airplane manufacturers in an effort to obtain the best possible price on their replacement equipment. An airplane manufacturer might give a large transport operator a price concession on replacement engines in order to obtain his goodwill and pave the way for subsequent sales of airplanes.

The Dresden Aviation Company did not look with favor on such practices. The company believed that a continuation of price cutting might result eventually in dissatisfaction with Dresden engines on the part of plane manufacturers. Users of Dresden engines might also become dissatisfied if competitors obtained replacement engines at unusually low prices. A further objection to the sale of replacement engines through plane manufacturers was that, since their primary interest was in the manufacture and sale of airplanes, they took little interest in promoting replacement engine sales.

Because of these conditions, the Dresden Aviation Company considered the possibility of making sales of replacement engines through its spare parts distributors and 60 service stations.

Dresden distributors were located at the airports of all important aeromotive centers, and Dresden service stations were located at nearly all minor aeromotive centers. If replacement sales were made through these agencies, engines could be made available to all users on short notice. Furthermore, since the servicing operations of the distributors and service stations brought them into direct contact with all types of aircraft engine users, including transport lines, fixed-base operators, and those individuals or companies using planes for private business, they were in a peculiarly favorable position to promote the sale of replacement engines. Finally, distributors and dealers maintained the facilities necessary for the installation of replacement engines as a part of their standard equipment; quick service and proper installations were thereby assured.

On the other hand, the company saw serious objections to the use of Dresden parts distributors and service stations for the sale of replacement engines. In the first place, the Dresden Aviation Company believed that a proper discount policy would be difficult to formulate. Because the company did not wish either to reduce its margin or to raise the price of engine replacements to consumers, a margin of only 25% between the largest discount and the list price was available. The company was convinced that its discount schedule should be based upon estimates of the average cost of placing engines in the hands of the various classes of purchasers, and that price differentials should reflect the cost of maintaining proper channels of distribution. On this basis, it had evolved the following discount schedule, contingent upon the adoption of its spare parts distributors and service stations as distributive channels for replacement engines:

Dresden Spare Parts Distributors.....	25% discount
Dresden Service Stations, and major airline operators whose flying equipment consisted of 25 or more engines, and who maintained regular schedules over a recognized air route.....	15% discount
Aircraft distributors and fixed-base operators operating aircraft primarily for profit and using 10 or more engines.....	10% discount
All others.....	list
Sales of engines to plane manufacturers for use as origi- nal equipment would be continued at a discount of 25%	

In the company's opinion, this discount schedule would offer several difficulties. The distributor would receive a net discount

of only 10% on sales of replacement engines made to service stations. With this discount, however, he must be prepared to handle any orders for engines received from his service stations. In addition, the distributor must give the service stations advice on the promotional efforts needed to make replacement sales. The distributor himself also would be expected to carry on promotional efforts to make replacement sales direct to users; among private operators, however, where such promotion was most needed, the distributor would have a 25% margin to work with. One potential source of expense would not be encountered, however; the company never had sanctioned trade-in allowances for worn engines, nor did it expect to institute such a policy in the future. Even though the Dresden Aviation Company did not plan to require that distributors carry stocks of engines, the company believed it quite likely that the discounts granted would prove to be too low for distributors to make a net profit on replacement sales.

The company believed that the service station's discount margin, under the proposed schedule, likewise was exceedingly narrow. On a net discount of 5% on sales made to such aircraft distributors and fixed-base operators as purchased from a service station, and of 15% on sales to others, the service station would be expected to promote replacement sales by direct mail and newspaper advertising and by personal solicitation.

In still another way the company's projected discount policy on replacement engine sales might be disadvantageous. Airplane manufacturers usually quoted the price of the plane and the engine as a whole to consumers. In pricing the finished product, the manufacturer usually added the desired percentage of profit to the list price of the engine plus the cost of the plane. Planes could be purchased without engines, however, from most manufacturers at prices which represented only the usual mark-up over factory costs of the airplane itself. As a result, if the purchaser of a plane could obtain a discount on the engine from another source, he might purchase the plane alone from the manufacturer and install in it an engine on which he had received a discount. Under the Dresden Aviation Company's proposed discount policy on replacement engine sales, a large transport line operator might effect a saving of as much as 15% of the cost of the engine in a new plane by following this procedure. Such

a course of action would eliminate the plane manufacturer's margin on the sale of the engine, which might be a large proportion of the total margin on the sale of the plane. Such incidents probably would result in an appreciable amount of ill will toward the Dresden Aviation Company among airplane manufacturers.

To prevent this result, the Dresden Aviation Company could require a distributor's assurance that all his engine sales were for replacement purposes only. This requirement, however, might be difficult to enforce. A distributor might not be able to resist the temptation of closing a large order, even if he knew that the engines sold were to be used for original equipment and not for replacement purposes; or, in many cases, it might be impossible for him to ascertain the final disposition which the purchaser would make of the engines.

The Dresden Aviation Company decided, however, to offer engines for replacement purposes through its distributors and service stations. The advantages of using these channels of distribution, the company anticipated, were that replacement engines would be obtainable by airplane owners on short notice, prompt and proper installation would be assured, and an organization which was proving itself loyal to the Dresden Aviation Company would, presumably, promote replacement sales aggressively. The Dresden Aviation Company believed also that hostility to the new policy on the part of airplane manufacturers was only a remote possibility.

The announcement letter to distributors stated that they were to be permitted to sell replacement engines under the following conditions:

1. The distributor will purchase engines direct from the Dresden Aviation Company as he now purchases spare parts.
2. Before making an engine sale, the distributor will assure himself that the purchaser intends to use the engine only for replacement purposes in a complete airplane in his possession at the time, and that he will not use the engine purchased as original equipment in a new airplane purchased from an airplane manufacturer.
3. The distributor will uphold the policies of the Dresden Aviation Company and cooperate in protecting the interests of aircraft manufacturers and aircraft distributors.
4. The distributor will confine his replacement sales to the territory assigned him by the Dresden Aviation Company.

COMMENTARY. The chief question in this case was whether, by selling engines for replacement purposes through its service representatives, the company in effect would be competing with its own customers, the airplane manufacturers who placed Dresden motors in their aircraft. Ordinarily, the company did not sell motors to airplane purchasers, and it could not afford to do so either directly or through its service agencies if that move would antagonize the airplane manufacturers who constituted the primary market for engines. At most, it appeared unlikely that the replacement market would absorb more than 20% of the company's civilian output; perhaps the proportion would be much lower. Although predictions on this score were difficult to make because of the rapidly changing factors of design and construction, which made aircraft as well as motors obsolescent at variable rates, yet it was almost certain that some expansion in the demand for replacement motors would take place.

It was clear that this demand should be met. Formerly, airplane manufacturers had made sales of such replacement motors as were called for. But with the establishment of its servicing organization, the Dresden Aviation Company now for the first time had an opportunity to assume more direct control over these sales. The company already had decided that it should assume responsibility for providing effective service facilities for all planes equipped with Dresden engines. By so doing, it was not competing with airplane manufacturers, but on the contrary was performing for them a function which they were not in a position to carry out.²

When it came to selling complete engines for replacement, however, the matter was not so clear. Such sales had given to airplane manufacturers a supplementary income with little expense. Were sales of replacement motors to be regarded as "service" or as "new sales?" If the latter, then the decision of the Dresden Aviation Company would bring it into competition with its main customers. It was more reasonable, however, to regard the selling of replacement engines as a service function. At best, the line between providing an airplane owner with parts and providing him with an entire engine was a shadowy one. In both instances, proper installation service was essential. This latter fact was a controlling reason for regarding sales of replacement motors as essentially a part of the motor servicing function, and the decision of the Dresden Aviation Company to offer replacement engines through its service agencies was sound.

Subsidiary questions in the case involved the discount schedule for replacement motors and the maintenance of prices. The Dresden Aviation Company showed a keener appreciation of the need for allow-

² See case and commentary on the Dresden Aviation Company (A), pp. 172-200.

ing adequate discounts to distributors and dealers than was typical of the industry as a whole at the time, but had not yet determined satisfactorily the margins which were necessary to assure its service agencies of profitable results from engine sales. As to price concessions on replacement motors by manufacturers, it was unlikely that any change could be effected by the company. In any event, large fleet operators were probably entitled to some quantity discounts, whether they bought replacement motors from airplane manufacturers or from Dresden service agencies. Consequently, unless such discounts were to be offered through these agencies, fleet operators doubtless would continue to purchase replacement motors from airplane manufacturers. It was neither possible nor desirable for the Dresden Aviation Company to interfere in such transactions.

July, 1930

C. I. G.

20. PRATT & WHITNEY AIRCRAFT COMPANY (C)¹

MANUFACTURER—AIRCRAFT ENGINES

DISTRIBUTION CHANNELS—*Replacement Sales Made through Airplane Manufacturers.* A manufacturer of aircraft engines made all replacement sales through plane manufacturers, thereby relieving itself of carrying an inventory of engines and incurring the goodwill of the manufacturers who made a profit on such sales. These manufacturers made little effort apparently to assure the correct installation of replacement engines; operators of large transport lines objected to purchasing through these companies; and the company's service stations and spare parts dealers wished to be allowed to make these sales. Nevertheless, the company was unwilling to change its policy.

(1929)

Since its inception, the Pratt & Whitney Aircraft Company of Hartford, Connecticut, had sold nearly all the aircraft engines which it manufactured for civilian use direct to manufacturers of airplanes, who, in turn, sold the engines to users of airplanes either as parts of finished planes or as replacements for those engines which had worn out in use. Prior to 1929, replacement sales had been unimportant. During that year, however, a marked increase had appeared in the demand for replacement engines, and by the fall of 1929 the sale of such engines constituted 20% of the company's total sales for civilian use. In view of the increasing importance of replacement engine sales, the Pratt & Whitney Aircraft Company decided to review its method of distributing them in order to determine if any changes should be made.

The Pratt & Whitney Aircraft Company's line of products consisted of two types of fixed radial nine-cylinder air-cooled engines; the "Wasp" engine developed 420 horsepower, and the "Hornet" 525 horsepower. From the start, the company's products had established a reputation for dependability and quality, and by the fall of 1929 the company had become the largest manufacturer of high-powered air-cooled aircraft engines in the world. In 1928, the company's sales had been approximately

¹ See also Pratt & Whitney Aircraft Company (A) and (B), pp. 47 and 201.

\$8,000,000, and it was expected that total sales in 1929 would exceed \$12,000,000. During 1929, the company's plant was being operated at capacity much of the time and, in order to meet future demand, the company had built a new plant, which was to be occupied in the early months of 1930. The new plant provided facilities for an increase of 100% in production, and enough additional land had been purchased in the vicinity to assure an indefinite expansion in the size of the plant.

Because of the high power and consequent high price of Wasp and Hornet engines, their use was restricted largely to operations on regularly scheduled transport lines, carrying mail, passengers, and express, or combinations of the three. Less than 10% of the Pratt & Whitney engines in use were in planes operated by individuals for pleasure flying, by business companies for the transportation of executives and salesmen, or by fixed-base operators, none of whom ordinarily required such high-powered engines.

In the latter part of 1928, the Pratt & Whitney Aircraft Company had decided to establish a nation-wide system of service stations and spare parts dealers, using transport line operators for this purpose. By the fall of 1929, Pratt & Whitney authorized parts and service dealerships were being operated by 9 transport lines in 21 important cities in the United States. In addition to this organization, the company operated its own service station at Hartford. Any important user of Wasp and Hornet engines was within three hours' flying time of an authorized service dealer. Theoretically, each dealer carried a complete line of Pratt & Whitney spare parts and was equipped to perform any type of service on Wasp and Hornet engines; in practice, some had not yet completed their inventory and repair equipment installations but were expected to do so shortly.

The company's discount schedule on spare parts was:

Individuals and companies using aircraft incidentally.....	List
Those obtaining the major part of income from the operation of aircraft (small transport operators, fixed-base operators, aerial service companies).....	10%
Preferred fleet operators (large transport lines).....	15%
Airplane manufacturers.....	15%
Authorized service stations and spare parts dealers.....	33 $\frac{1}{3}$ %

The Pratt & Whitney Aircraft Company sold spare parts to users from the Hartford service station at the same prices charged by dealers. No salesforce was maintained to visit dealers for the

purpose of selling them spare parts and of checking their stocks. The company maintained a force of 15 travelling mechanics who advised dealers on the best methods of servicing Wasp and Hornet engines and sometimes performed service themselves in the dealer's shop, but these mechanics did no selling of spare parts. The company's engine salesforce consisted of two salesmen and the company executives, who visited both airplane manufacturers and transport line operators at frequent intervals.

The need for engine replacements arose from the fact that the average life of a well-serviced aircraft engine was normally 1,500 to 2,000 hours of flying time, and the life of an airplane was considerably longer. The engine consisted largely of moving parts, and was subject to strains and stresses of tremendous power and to wear and fatigue in the course of ordinary operations. The plane itself consisted of relatively few moving parts; its length of life was determined by obsolescence and fatigue rather than by wear. Because the average airplane's life was longer than that of the average engine, new engines were often installed in old planes after the original engines had worn out. The term, "replacement engines," also included those extra or substitute engines which were kept in stock by transport lines for temporary use in planes whose original engines were being overhauled. All transport lines possessed equipment adequate for the installation of replacement engines in planes originally built for the same type of engines.

According to the company's analysis of the situation, the ultimate user of Pratt & Whitney engines, the air line operator, purchased his engine and plane equipment purely from such rational motives as adaptability to the particular use, economical operation, and dependability in use; low initial cost was a motive only when it could be shown that economical operation and dependability in use did not suffer thereby. The larger lines made their purchases through a purchasing department, but the smaller lines were not always able to support such an organization. In either case, however, the sale of equipment was made to men well versed in the technical aspects of aviation. Many of them, though not all, had accurate knowledge of when the purchase of such new equipment as replacement engines was desirable. Without any sales promotional effort on the part of the Pratt & Whitney Aircraft Company, a transport line usually carried a sufficiently large stock of spare engines to provide for emergency installations

in case of engine failure and to replace engines which were being overhauled. The Pratt & Whitney Aircraft Company believed that aggressive selling of replacement engines would be undesirable, since the transport line which carried an unnecessarily large stock of replacement engines would incur the cost of maintaining an excessive inventory.

Because the Pratt & Whitney Aircraft Company believed it was logical for the user of a plane to purchase replacement parts for the plane from the plane manufacturer, and because it regarded the engine as a part of the plane, it originally had selected plane manufacturers as the distributors of replacement engines. The company had reserved the right, however, to sell replacement engines to users at a price somewhat above that which it quoted to plane manufacturers. The company granted no allowances on trade-ins of used engines. On March 1, 1929, the following discount schedule on the sale of engines was in effect:

WASP ENGINES

	Price	% of List Price
Individuals and companies using aircraft incidentally.....	\$7,200	100
Small fleet operators.....	7,200 less 10% (6,480)	90
Airplane manufacturers.....	5,760	80
Large fleet operators and Pratt & Whitney spare parts dealers.....	5,730 plus 10% (6,303)	88

HORNET ENGINES

Individuals and companies using aircraft incidentally.....	\$8,500	100
Small fleet operators.....	8,500 less 10% (7,650)	90
Airplane manufacturers.....	6,490	76
Large fleet operators and Pratt & Whitney spare parts dealers.....	6,490 plus 10% (7,139)	84

Air line operators were requested by the Pratt & Whitney Aircraft Company to purchase replacement engines for their planes from the manufacturers who had sold them the planes originally. If an operator did not know on what make of plane the engine was to be installed, he usually ordered through the Pratt & Whitney Aircraft Company. The company always made such sales at a price 10% above that which the plane manufacturer would have charged. In spite of this invariable policy, several

operators ordered all replacement engines through the company, in the hope of obtaining quotations below those of plane manufacturers. Such orders were turned over to a plane manufacturer, if the planes in which the engines were to be installed could be determined and if the plane manufacturer carried a stock of engines adequate to fill the order.

This system of distributing replacement engines had been of benefit to the Pratt & Whitney Aircraft Company in several ways. In the first place, the company was largely relieved of carrying an inventory of engines, and it could, by making annual contracts with plane manufacturers for their estimated engine requirements, arrange its production schedule in the most economical manner and ship engines as they were manufactured. In the second place, the airplane manufacturer, in the company's opinion, was enabled to make an excellent profit on the sale of engines for replacement with little effort, and thus the goodwill of the Pratt & Whitney Aircraft Company's customers was gained. Finally, the airplane manufacturer could, through his salesmen, determine the replacement needs of those air line operators who were not aware of them, and so increase the sale of replacement engines without overstocking the operator.

A difficulty had arisen over the Pratt & Whitney Aircraft Company's discount policy. The large fleet operators purchased relatively large numbers of replacement engines in the course of a year; one year's purchases of replacement engines by a large operator might exceed the individual annual requirements of many plane manufacturers for initial installations in new planes. These operators were unable to understand why they should be obliged to purchase engines through plane manufacturers when their requirements were equal to or greater than the manufacturers' own requirements.

Theoretically, the Pratt & Whitney Aircraft Company contended, the larger discount received by the plane manufacturer was justified because of the service he performed in carrying an inventory of engines, in helping the company to maintain regular production, and in promoting replacement sales; practically, this was not always true. Many plane manufacturers did not possess financial resources adequate to carry an inventory of engines sufficiently large to meet replacement demands from their customers. Moreover, they were likely to overestimate their sales and

thus to overestimate their annual engine requirements; consequently, the Pratt & Whitney Aircraft Company sometimes was forced to modify its contract with a manufacturer, and thus to revise its production schedule. Furthermore, in many instances the sales organization of a plane manufacturer was so small that it was unable to promote replacement sales among those transport operators who needed engines; often the plane manufacturer was interested only in the sale of planes and tended to ignore the sale of replacement engines. An example of such a situation had occurred in December, 1929. One of the Pratt & Whitney Aircraft Company's salesmen had found that a large air line operator required 10 Wasp engines for replacement purposes in a single make of airplane. The order was secured through the salesman's efforts and sent directly to the factory. Upon receipt of the order, however, the sales manager of the Pratt & Whitney Aircraft Company turned it over to the plane manufacturer in whose planes the engines were to be installed, and the manufacturer shipped them from his inventory. In other cases, where a plane manufacturer's inventory was inadequate, the Pratt & Whitney Aircraft Company had been forced to ship the engines from its plant, disrupting the production schedule and slowing up other orders. In effect, therefore, the Pratt & Whitney Aircraft Company expended all the sales effort in many cases and received none of the reward except its profit on the sales to the plane manufacturers.

A further difficulty encountered under the company's policy of making replacement sales arose from the fact that the Pratt & Whitney service and spare parts dealers desired to make replacement sales, since in most cases they did the actual installation, and since they would then obtain the maximum discount on replacement engines for their transport operations.

The Pratt & Whitney Aircraft Company was reluctant to change its replacement sales policy unless a change were found to be absolutely necessary. If the company began to distribute replacement engines through its most efficient parts dealers, other dealers would want the privilege as well, and if they all sold replacement engines the sales volume of any one of them would be so small as to cause a lack of interest. Another objection was that the plane manufacturers using Wasp and Hornet engines, who were regarded as the company's largest potential customers, looked upon replacement engine sales as a source of easily made

profit; if the privilege were withdrawn, much of their goodwill might be lost.

Finally, the Pratt & Whitney Aircraft Company anticipated that the sale of replacement engines through its dealers would necessitate a change in its discount schedule. Even if replacement sales were made through dealers, it was the company's opinion that airplane manufacturers, as the company's most direct and largest potential customers, should still be allowed to make such sales where possible; furthermore, the company believed that airplane manufacturers should be quoted a price approximately 10% less than that quoted to dealers, in order that it might still be possible for them to sell in competition with dealers and make a profit on such transactions. At the same time, it would be necessary to give dealers a larger discount than the one they already were obtaining as transport lines, in order to compensate them for the cost of the larger inventory they would have to carry. The existing spread of less than 25% between the list price and the lowest quoted price was considered inadequate to meet both these requirements. So long as the same spread was retained, if the price quoted to the dealer was reduced, the plane manufacturer's protection would be too small; if, on the other hand, the price to the dealer remained the same in order to protect the plane manufacturer, the dealer would receive no compensation for the cost of carrying an enlarged inventory. The only solution appeared to lie in a reduction of the prices quoted to plane manufacturers by the Pratt & Whitney Aircraft Company. In this way, the price to the dealer could be reduced without encroaching upon the plane manufacturer's protective margin. This action the Pratt & Whitney Aircraft Company was unwilling to take, since its margin of profit would thereby be reduced.

Granting, however, that a change in the discount schedule was possible, the only demand for replacement engines sold by dealers, outside of the demand arising from their own transport activities, would come from small fleet operators and individuals and companies using aircraft incidentally. Since those transport lines functioning as dealers operated a large proportion of the Pratt & Whitney engines in use, almost the only purpose which would be served by granting dealers the privilege of selling replacement engines would, in the company's opinion, be to grant them a lower price on replacement engines for their own use.

COMMENTARY: This case is another illustration of the fact previously commented on that in the stage of development of the aviation industry existing in 1929 engines and planes had not become fused in a single identity. When and if the identity of engines eventually becomes submerged in that of planes, it presumably will be desirable to confine the sale of replacement engines entirely to plane manufacturers.

In this case the possible methods of distribution for replacement engines open to the Pratt & Whitney Aircraft Company were (1) sale through plane manufacturers, (2) sale direct to transport companies, and (3) sale through authorized service and spare parts distributors, who, in this case, were selected air transport companies. Sales might have been made through any or all of these channels on the basis of (1) a fixed price to all, irrespective of quantity purchased, (2) fixed quantity discounts operating in favor of any quantity purchasers, or (3) trade discounts designed to protect the profit of the plane manufacturers.

It was the settled practice of plane manufacturers in establishing prices on planes to take a mark-up on the cost to them of the engines with which the planes were equipped. Consequently any arrangement permitting air transport companies to buy engines on as favorable terms as plane manufacturers would have caused serious ill will among the plane manufacturers, inasmuch as this arrangement would have offered an opportunity to air transport companies to obtain complete planes at lower cost by buying only the planes from the plane manufacturers and installing in them motors bought directly from the engine manufacturer. For the time being at least, this consideration apparently ruled out any possibility of placing plane manufacturers and air transport companies on equal terms in the purchase of engines. On the positive side also some goodwill doubtless accrued to the Pratt & Whitney Aircraft Company from plane manufacturers because of the opportunity afforded the latter to make profits from the sale of engines for replacement purposes.

In regard to the possibility of sales through authorized service and spare parts distributors, the fact that service and spare part franchises had been granted by the Pratt & Whitney Aircraft Company to selected air transport companies made it an unsound policy to give these selected transport companies advantages over other transport companies in the purchase of replacement engines. Such discrimination would have increased the risk of ill will from customers both actual and potential. Under the company's existing service policy, holders of service and spare part franchises apparently were ruled out as a primary channel of distribution for replacement engines.

In the matter of its discount policy on replacement motors, in case the Pratt & Whitney Aircraft Company decided to use more than one channel of distribution, the fact that some transport companies

were conceivably in a position to buy larger quantities of engines than were some small plane manufacturers was a serious argument against any schedule of straight quantity discounts. Therefore any discounts granted should have been trade discounts rather than quantity discounts.

On the whole, the evidence seems to favor the policy of confining the sale of replacement engines to plane manufacturers. In case reasons arising from the inclusion of the Pratt & Whitney Aircraft Company in the United Aircraft & Transport Corporation seemed to make expedient the direct sale of replacement engines to air transport operators, these sales should have been made at a smaller trade discount than was granted to plane manufacturers.

June, 1930

M. P. M.

21. STINSON AIRCRAFT CORPORATION (A)¹

MANUFACTURER—AIRPLANES

DISTRIBUTION CHANNELS—*Discontinuance of Exclusive Territories for Dealers.*

An airplane manufacturer, in changing its distributing system from one of distributors and dealers to one of dealers alone, decided not to grant exclusive territories, as it formerly had done. The company's reasons for this step were that it was difficult to define exact boundaries and to prevent dealers from invading each others' territories and that the granting of exclusive territories had resulted in laxity of selling effort on the part of dealers.

(1930)

Early in 1930, the Stinson Aircraft Corporation, manufacturing a wide line of cabin monoplanes ranging from single-motored planes to tri-motored airliners, had become dissatisfied with its distributing system. In the course of a general revision of its distribution plan, the company decided to discontinue the exclusive franchises it had granted to its sales representatives and to grant franchises for the sale of Stinson airplanes on a non-exclusive basis.

During 1929, the Stinson Aircraft Corporation had sold its airplanes through a system of distributors who resold to dealers. Each distributor was granted an exclusive territory with estimated potential annual sales of at least 20 planes. Distributors, in turn, appointed dealers, with the company's approval. Each dealer was granted an exclusive portion of the distributor's territory for retail activities; the distributor usually reserved the territory immediately adjacent to his headquarters for his own retail sales. Distributors acted as general administrators for their territories, were granted a discount of 20% on the purchase of each plane, were required to contract for the purchase of at least 20 planes annually, and were required to deposit \$250 with the company for each plane contracted for. Although distributors

¹ See also Stinson Aircraft Corporation (B), (C), (D), and (E), pp. 238, 272, 302, and 318 respectively.

determined the discounts which they granted to dealers, the company recommended that they grant a discount of 15% to dealers who possessed planes for demonstration, and of 10% to dealers who depended upon the distributors to furnish demonstration service.

The sales manager of the Stinson Aircraft Corporation had made frequent visits to the company's 20 distributors during 1929 in order to observe their selling methods and to give them advice on the proper methods of selling airplanes; no men were employed specifically for this purpose. The company also carried on a small amount of advertising, principally in aviation trade journals. Inquiries received in response to this advertising were turned over to distributors. If an inquiry was received from a territory not covered by a distributor, however, and if the inquirer evinced a serious intention of purchasing a plane, an executive of the company visited him to give a demonstration.

In the opinion of the company, its experience demonstrated that distributors performed no necessary function, and it planned in 1930 to sell directly to dealers, endeavoring at the same time to retain as dealers all former distributors who appeared competent to sell at retail. In planning this reorganization of its distributing system, the company also decided to discontinue granting exclusive territories.

In the experience of the Stinson Aircraft Corporation exclusive territories were detrimental to its interests. Three serious disadvantages had appeared. In the first place, it was difficult to define boundaries intelligently. Again, it was difficult to prevent one dealer from invading the territory of another, since the airplane was such a mobile means of transportation that the territories of several dealers might be covered in an hour's flight. Finally, and most important, the Stinson Aircraft Corporation had found that the granting of exclusive territories had resulted in laxity on the dealer's part in selling planes. The company had found that the typical dealer, when granted an exclusive territory, had regarded airplane sales as something which could be obtained without effort. The dealer's attitude had been that anyone within his territory who desired to purchase a Stinson plane must come to him. The Stinson Aircraft Corporation believed that this attitude on the part of dealers had resulted in the loss of many possible sales.

In granting non-exclusive franchises, the company considered the potential sales which could be attained within a specified area, as indicated by the wealth of the area and the number of airports, licensed pilots, and licensed planes in the area, and regulated the number of dealers accordingly. It was the company's opinion that the non-exclusive arrangement would make each dealer exert selling effort for fear of losing sales to a nearby dealer. The company believed that such an arrangement required careful administration on the part of the manufacturer, since it involved spacing the dealers in such a way as to give each an opportunity to make a profit from the sale of planes; on the other hand, laxity on the part of any one dealer might be compensated for by the invasion of his trading area by others.

COMMENTARY: The belief that it was not getting its maximum share of the market for airplanes led the Stinson Aircraft Corporation to abandon its practice of granting exclusive territorial sales rights to dealers and to substitute a policy of selective distribution aimed at encouraging interdealer competition.

The company properly stopped short of a program of dense distribution. Sale of Stinson planes to all dealers willing and able to purchase them would have been wholly incompatible with the requirements for selling airplanes. The lack of widespread demand for aircraft, the high unit price, and the consequent substantial sales effort and expense necessary for making sales all required that the self-interest of dealers be safeguarded in every way.

In view of this need for safeguarding the self-interest of dealers, it is difficult to agree with the company's decision to apply the selective rather than the exclusive principle to its dealer appointments. The arguments advanced in the case against the exclusive-protection principle were: the difficulty of defining exact territorial boundaries; the difficulty of preventing invasion of territories; and the laxity of sales effort resulting from exclusive sales rights.

These reasons do not make a convincing case for the abandonment of exclusive dealerships. Difficulty in defining territories, while perhaps extreme in the case of the airplane market, could have been overcome by careful field surveys. Moreover, the company proposed to estimate potential sales in any event and, regardless of whether selective or exclusive sales rights were given, it would be imperative to relate those estimates directly to the sales volume, margin, and stock-turn requirements of each dealer in such a way that the dealer would be reasonably certain of profitable operation provided he put forth reasonable sales efforts. Infringement of territories could be avoided, for

the most part, by selection of reputable dealers. The statement, furthermore, that it was difficult to prevent mutual invasion of territories by dealers was in fact inconsistent with the allegation that protection of territory led to laxity in sales effort.

As to the observed laxity of sales effort on the part of dealers, it was probable that inter-dealer competition would serve to aggravate rather than to correct this. A dealer would be depressed and not stimulated by the possibility that the benefits of his preliminary sales work would be reaped by another dealer. Even under the most favorable circumstances the airplane dealer had great difficulties to overcome in effecting sales. If to the unavoidable difficulties of limited demand, high unit price, technical nature of product, and strong competition from dealers selling competing planes was added competition from dealers selling the same make of planes, the dealer might very well conclude that the possibility of selling enough planes to realize a profit was too remote to justify aggressive sales effort on his part. Assignment of territories with adequate sales possibilities, granting of fair gross margins, and effective sales assistance from the manufacturer were much to be preferred as sales stimuli to anxiety over inter-dealer competition.

June, 1930

C. I. G.

22. STINSON AIRCRAFT CORPORATION (B)¹

MANUFACTURER—AIRPLANES

SALES TERMS—*Discontinuance of Minimum Purchase Agreements with Dealers.* In changing its distributing system from one of distributors and dealers to one of dealers alone, a manufacturer of airplanes, believing that accurate forecasts of annual plane sales within a given territory could not be made, decided to discontinue the use of contracts requiring its dealers to accept delivery of a minimum number of planes per year.

(1930)

Early in 1930, the Stinson Aircraft Corporation, manufacturing a wide line of cabin monoplanes ranging from single-motored planes to tri-motored airliners, became dissatisfied with its distributing system. In the course of a general revision of its channels of distribution, the company decided to discontinue the use of so-called "minimum contracts" with sales outlets, which required them to take delivery of a minimum number of airplanes during the year.

During 1929, when the Stinson Aircraft Corporation was selling its planes through a system of distributors and dealers, each distributor had been required to sign a contract agreeing to accept delivery of a minimum of 20 planes per calendar year. The time of delivery of each plane was not specified in the contract, but the total number must be accepted within the year. The distributor also was required to deposit with the company the sum of \$250 for each plane contracted for. If the distributor accepted delivery of a plane, his account was credited with the amount of the deposit; if he failed to accept delivery of the total number contracted for, the deposit on the undelivered planes was forfeited.

The Stinson Aircraft Corporation, early in 1930, decided to abolish distributorships, and to sell direct to dealers operating in non-exclusive territories. It was at this time that the company also decided to discontinue the use of the minimum contracts;

¹ See also Stinson Aircraft Corporation (A), (C), (D), and (E), pp. 234, 272, 302, and 318.

the dealer contract granting a franchise was to be merely a statement that the dealer was granted the right to sell Stinson planes at retail and to receive a discount of 15% on each plane sold. No other provisions of importance were included in the contract, and it was terminable at any time, upon the desire of either party.

In the company's opinion, the fundamental objection to minimum contracts was that accurate forecasts of annual plane sales within a given territory could not be made. The minimum number of planes to be delivered over the period of a year usually was decided upon in a conference between the distributor and the manufacturer. Past experience and data on which to base estimates of future results in terms of plane sales within a territory were almost wholly lacking; as a result, the distributor, carried away by enthusiasm and by a desire to impress the manufacturer, often estimated his annual sales at a high figure. Such estimates were rarely fulfilled. If the manufacturer enforced the contract, the distributor was obliged either to burden himself with planes which he could not sell or to forfeit a substantial sum. In either case, his position was weakened, not only to his own detriment, but also to that of the manufacturer. If the contract was not enforced by the manufacturer, it became meaningless, and the distributor soon realized this fact.

COMMENTARY: The issue in this case was whether or not to continue use of the "minimum sales" contract, by which the dealer agreed to accept delivery of a specified number of planes and deposited, subject to forfeiture, an advance part payment on each plane contracted for. Use of similar contracts was widespread in the industry both between manufacturers and their sales outlets and between distributors and dealers.

The company's reasons for instituting the advance or "minimum sales" contract with distributors are not given in the case; the purposes of this form of agreement, however, seem to have been:

To aid the airplane manufacturer in selecting financially strong distributors by stipulating an advance deposit on each plane contracted for.

To induce the distributor (or dealer) to estimate accurately his probable sales during the period covered, and thus:

to prevent awarding of franchises based on careless or over-optimistic predictions; and to furnish the manufacturer with reliable estimates for guidance in planning output.

To furnish the manufacturer additional working capital.

To stimulate the sales activities of the distributor through fear of forfeiting his deposits.

To provide a measure of the capacity of the distributor, through comparison of his sales with his advance orders.

It must be granted that the foregoing purposes were in themselves valid, yet as the specific means of attaining them the minimum sales contract with the forfeiture proviso was open to serious objections. Use of this contract was based on the following premises:

That probable sales of a particular make and model of airplane in a given territory could be forecast accurately.

That distributors (or dealers) were able financially to make the required advance deposits.

That it was fair and reasonable to expect them to furnish manufacturers with working capital.

That fear of forfeiture, with the consequent ability of the manufacturer to force his product upon his sales outlets, was an effective and defensible means of stimulating resale.

It requires no lengthy argument to show that these premises were untenable. Because of the general lack of adequate market research data, sales could not be forecast accurately. Manufacturers should not have looked to sales outlets for working capital. Forcing planes on distributors was unsound if for no other reason than that such a policy would promote unhealthy competition, distributor antagonism, and use of undesirable sales methods.

Clearly, then, the Stinson Aircraft Corporation's decision in this case was well taken. The company still had the problem of devising means for estimating sales, for appraising the performances of dealers, and for encouraging dealers to exert their best sales efforts in behalf of the company's products. As rapidly as it accumulated the necessary market data, the company should have undertaken to set fair sales quotas for dealers and to help the dealers reach these quotas. Such plans would be preferable, as sales stimuli, to the threat of forfeiture contained in the minimum sales contract, and financial capacity could be measured by better standards than ability to make advance deposits.

June, 1930

C. I. G.

23. GREAT LAKES AIRCRAFT CORPORATION (B)¹

MANUFACTURER—AIRPLANES

TRADE-INS—*Used Airplane Exchange Bureau for Dealers.* In order to broaden its market, an airplane manufacturer had reduced materially the retail price of its product. To help its dealers dispose of the stocks of used planes which had been accepted as trade-ins on sales made under the former price schedule, by increasing their chances of filling the specifications of prospective purchasers, the company decided to establish at its factory a general clearing house of information secured from periodic reports from dealers on the used planes held for re-sale by its dealers, and to make this information available to all the dealers.

(1930)

During the early months of 1930, the Great Lakes Aircraft Corporation had reduced the retail price of its Sport Trainer airplane from \$4,990 to \$3,150. Many of the company's dealers possessed stocks of used planes which had been accepted as trade-ins on the sale of new planes; since the valuation of the planes accepted in trade had been based upon the former price schedule, these dealers faced a serious problem in disposing of used planes. In order to help its dealers dispose of these stocks, the Great Lakes Aircraft Corporation decided to establish a used plane exchange bureau for the dealers.

The Great Lakes Sport Trainer, the company's principal commercial product, was a 2-place open-cockpit biplane powered with the American Cirrus Mark III air-cooled in-line engine developing 90 horsepower. It was designed to meet the requirements of a plane used both for sport by private individuals and for flight training by flying schools; other potential users were business firms, which might use the plane for the transportation of executives and salesmen. The Great Lakes Aircraft Corporation believed that the Sport Trainer was superior to any other airplane of the same class and of comparable horsepower in performance, ease of handling, safety, and quality of construction.

¹ See also Great Lakes Aircraft Corporation (A) and (C), pp. 162 and 323.

The Great Lakes Aircraft Corporation regarded operators of flying schools as the logical type of retail outlets for the Sport Trainer. The company's dealers almost invariably gave flight instruction, and in some cases they also provided aerial taxi, photography, and other services, offered airplane and engine repair and maintenance, and sold accessories. The company sold its planes direct to dealers, each of whom operated in a relatively limited exclusive territory. They were granted a discount of 15% on the purchase of one plane; 18% on the purchase of two; 20% on three; 22% on four; 24% on five, and 25% on the purchase of six or more. The discounts became retroactive upon the purchase of two or more planes. Dealers were not restricted to the sale of Great Lakes planes; they were allowed to sell noncompeting but not directly competing planes. A typical dealer possessed a hangar located at a municipal or private airport or flying field, a stock of planes for operations, and facilities for plane and engine service. The sales manager of the Great Lakes Aircraft Corporation believed that a dealer could begin operations with a capital of approximately \$25,000.

The sales manager of the Great Lakes Aircraft Corporation was convinced that a strong dealer organization was a prerequisite to the successful sale of planes, and that such an organization could not be built up unless dealers were given every opportunity to make a profit. Consequently, the company had instituted a policy of aiding the dealer to sell planes. Travelling factory representatives not only obtained the services of new dealers, but also gave existing dealers advice in merchandising and sales methods. The company furnished each dealer with a series of manuals, setting forth in detail the proper methods of conducting flying school and plane dealer operations, of securing lists of prospective customers, and of approaching such customers. In addition, the Great Lakes Aircraft Corporation carried on an extensive advertising campaign in trade journals and in general magazines circulating among wealthy consumers; all inquiries originating from prospective retail purchasers of planes in response to this advertising were referred to the territorial dealers.

During 1929, production of airplanes had been in excess of demand; as a result, it was generally believed that there was a large carryover of 1929 planes in 1930, both at plane factories and in the hands of dealers. Furthermore, many plane manu-

facturers were convinced that a general downward revision of prices was necessary in order to induce the general public to purchase planes in any quantity. The sales manager of the Great Lakes Aircraft Corporation believed that sales to the industrial market for airplanes, especially to flying school operators, would be less in 1930 than they had been in 1929. As a result, in order to maintain the company's sales volume, a larger portion of the sales of the Great Lakes Sport Trainer in 1930 must be made to individual purchasers. It was with this in mind that the Great Lakes Aircraft Corporation had reduced the price of its Sport Trainer from \$4,990 to \$3,150.

Under the new price schedules, it sometimes was possible to purchase a new plane for the same amount that dealers had allowed on the trade-in of a used plane of comparable performance in 1929. It had become necessary, therefore, for dealers to reduce the prices on the used planes which they held in stock to conform to the new price schedules. In order to release working capital, it appeared to be important that dealers sell their stocks of used planes as quickly as possible. In many cases, however, it was difficult for a dealer to dispose of his stock rapidly, since prospective purchasers of planes were widely scattered and a dealer often was unable to supply the type of used plane which a prospective purchaser desired to buy.

In accordance with its policy of aiding its dealers, the Great Lakes Aircraft Corporation wished to adopt some plan which would lessen the dealer's burden, but which would not force the company actually to enter the business of selling planes at retail. As a solution of this problem, the sales manager decided to establish at the factory a general clearing house of information concerning used planes in the hands of Great Lakes dealers. Such an exchange would materially lessen the chance of a dealer's being unable to fill the specifications of a prospective purchaser, since the dealer would have at his disposal the used plane stock of all Great Lakes dealers. In the same way, it would be possible for each dealer in the organization to come into contact with a larger number of prospective purchasers.

Copies of the form shown in Exhibit 1 were sent to each dealer, who filled out and returned to the factory two copies for each plane accepted in trade.

HARVARD BUSINESS REPORTS

USED PLANE EXCHANGE BUREAU
GREAT LAKES AIRCRAFT CORPORATION
CLEVELAND, OHIO

Location _____	Date _____	
Owner _____		
Address _____		
Information	Plane	Engine
Name _____	_____	_____
Model _____	_____	_____
Type Certificate No. _____	_____	_____
Year Made _____	_____	_____
Number of Hours _____	_____	_____
Crashes _____	_____	_____
Cost of Repair _____	_____	_____
Number of Places _____		Controls _____
Colors _____		
Instruments _____		
Weight, Empty _____ Pounds. Pay Load _____ Pounds. Propeller _____		
Landing Gear _____ Oil Capacity _____ Gallons _____ Hours _____		
Cost, New \$ _____ When Purchased _____		
Lowest Selling Price, \$ _____ Terms: _____		
Where plane can be examined _____		
Remarks: _____		

Send two photographs if possible. Give full information under remarks. Send two copies of this Listing Blank to Sales Department, Great Lakes Aircraft Corporation, 16,800 St. Clair Avenue, Cleveland, Ohio.

Exhibit 1: Used plane record kept by Great Lakes Aircraft Corporation.

Upon receipt of this form from a dealer, duplicates were made and sent at once to all the company's dealers. In this way, all dealers were kept constantly aware of the stocks of used planes

held by others throughout the United States. If a dealer was unable to fill the requirements of a prospective purchaser of a used plane, he referred to his file; if the record showed that another Great Lakes dealer was able to fill the requirements, the first dealer communicated with him.

COMMENTARY: The decision of the Great Lakes Aircraft Corporation to act as a clearing house for the exchange of used-plane data among its dealers was an evidence of foresight and of a constructive attitude toward the marketing situation.

From the facts stated in the case, it would be futile to argue as to whether the company was correct in concluding that the market comprising flying schools and other commercial operators was in fact at or near the saturation point. In view of the large stocks of planes in the hands of manufacturers and distributors and the consequent inevitability of strong competition, it was apparent that the company and its dealers must rely for sales primarily upon developing new markets rather than upon additional sales to present users. It was highly important, therefore, that the company and its dealers concentrate sales efforts on new rather than used planes. The positive appeals of safety and excellence of performance, and not the negative appeal of price as exemplified in a used-plane bargain, constituted the suitable basis for attracting new users not already predisposed to purchase aircraft.²

Under these circumstances, the policy of exchanging used-plane data was a particularly desirable step. It gave maximum opportunity for the company's dealers to dispose of used planes by having them widely listed and thus, by freeing the dealers from some of the burden of used-plane disposal, permitted them to concentrate more fully upon sale of new planes. The company should have made clear to its dealers that its plan was designed, not to encourage attempts on their part to push the sale of used planes, but rather to make such trading-down efforts unnecessary by multiplying the opportunities for locating persons who definitely were seeking used planes. Such buyers were likely to be limited to persons or firms of the commercial operator type.

Another important advantage of the company's plan lay in the opportunity it provided for gathering data on the used plane market. These data, amplified as experience might dictate and supported by field observations, would be highly valuable for further study and analysis of trade-in policies. There was reason to hope that through

² See also the Parker-Weston Company (B), p. 247, and the Simmons Airplane Sales Company, p. 254.

such study and analysis the Great Lakes Aircraft Corporation eventually would be able to formulate a well-founded policy toward trade-ins which would serve the interests of dealers and manufacturer alike. Cooperation with other manufacturers in developing this policy was highly desirable.

June, 1930

C. I. G.

V. PRICES AND TERMS OF SALE

24. PARKER-WESTON COMPANY (B)¹

DISTRIBUTOR AND DEALER—AIRPLANES

TRADE-INS—*Allowance Policies on Used Airplanes.* In deciding the amount of trade-in allowance to be granted on a used airplane, the sales manager of a company which was a distributor and dealer of airplanes took into consideration the following factors, among others: the amount of overhaul work needed on the plane; the probability of obtaining an immediate purchaser for it; and, if the plane was one for which the company did not hold a franchise, the location of the nearest dealer for that plane. The sales manager also followed a policy of not making allowance valuations and holding used planes in stock for the company's dealers.

(1929)

In the course of its airplane sales activities, the Parker-Weston Company occasionally had been called upon to grant the purchaser of a new plane an allowance on his old plane. The sales manager of the company had faced four important allowance problems in the fall of 1929, each of which illustrated a policy which he believed to be fundamental.

The Parker-Weston Company, located at the municipal airport of a large city in the north central part of the United States, had been organized early in 1929 as an airplane distributor and dealer and an airplane and airplane engine service station. The company had obtained an exclusive distributor's franchise from a prominent plane manufacturer and an exclusive spare parts and service distributor's franchise from an equally prominent aircraft engine manufacturer for a territory of approximately 70,000 square miles surrounding the Parker-Weston Company's home city.

The Parker-Weston Company regarded itself, primarily, as a dealer, distributor, and service station for planes and engines; no such activities as taxi service and flight training were carried on. The president of the company stated that the experience of automobile distributors and dealers had tended to show that the larger part of their profits was derived from servicing cars and

¹ Fictitious name. See also Parker-Weston Company (A), p. 141.

from sales of accessories, gasoline, and oil rather than from the sale of automobiles. The Parker-Weston Company looked forward to such a situation in the aviation industry, and expected that the larger part of its future profits would be derived from its servicing activities and from the sale of accessories and spare parts. The company did not desire to neglect its retail sales activity, but it believed that the plane dealers which it appointed should be the important vendors of new planes at retail, while the company itself as distributor should perform all repairs except those of a minor character. Consequently, the company was interested in increasing the number of planes sold at retail in order to increase the opportunities for giving service.

In the opinion of the president of the Parker-Weston Company, it held two of the most valuable franchises in the aviation industry, that of the Denton Airplane and Manufacturing Company,² manufacturers of Sky-King airplanes,² and that of the Vollmer Motor Corporation,² manufacturers of a well-known line of airplane engines. The Sky-King line of airplanes included a variety of models, ranging from small open-cockpit sport planes to 8-place cabin planes. Prices varied from \$4,000 to \$18,000, depending upon the engine and the model; the average price of Sky-King planes was approximately \$8,000. Nearly all Sky-King planes were furnished with Vollmer engines as standard equipment. Vollmer engines also were installed as original equipment in the planes of a large number of other aircraft manufacturers.

The franchise which the Parker-Weston Company had obtained from the Denton Airplane and Manufacturing Company gave it almost complete control of the distribution of Sky-King airplanes within its territory. The Parker-Weston Company was granted the right to appoint dealers and to supervise their sales activities without interference by the manufacturer. No policies on used plane allowances were suggested by the manufacturer.

In return for these privileges, the Parker-Weston Company was required to contract annually to take delivery of a specified number of planes during the course of the year, the number to be determined by the probable annual sales within the territory as agreed upon by the distributor and the manufacturer. A deposit of \$250 was made upon each plane, and the planes were paid for

² Fictitious name.

by sight draft upon delivery. The Parker-Weston Company also was required to maintain complete servicing facilities for Sky-King planes, and to carry a stock of spare parts adequate to meet the probable needs of the territory. The company agreed to sell only those planes of other manufacturers which did not compete directly with the Sky-King line. A stock of six Sky-King planes of different models usually was carried. The Parker-Weston Company was granted a flat discount of 25% from the retail list price upon its purchases of planes from the Denton Airplane and Manufacturing Company. It granted its dealers, in turn, a flat discount of 15%. The franchise from the Vollmer Motor Corporation designated the Parker-Weston Company as the exclusive Vollmer service distributor for its territory.

Four Sky-King dealers had been appointed by the Parker-Weston Company; one of these dealers also possessed the single Vollmer dealership that had been granted. The territory immediately surrounding its home city was reserved by the Parker-Weston Company for its own retail activities. The plane dealers were located at widely separated points; they were not granted exclusive territories, but it was understood that one dealer should not attempt to sell to the prospective customers of another. Each of the dealers was located at an airport and possessed a hangar, facilities for making minor repairs to planes, at least one Sky-King plane for demonstration purposes, and a small stock of spare parts for Sky-King airplanes. In addition, they all carried on taxi services and training operations. All dealers carried a stock of such minor engine parts as spark plugs and valves, and provided facilities for minor engine repairs. Dealers were allowed to sell noncompeting makes of airplanes. They were required to contract for the delivery of a specified number of planes annually, the number to be determined in a conference between the distributor and the dealer. A dealer's deposit of \$190 on each plane contracted for was required.

The president of the Parker-Weston Company believed that approximately 40 Sky-King planes were in operation in the company's territory early in 1930; of these, 21 had been sold by the company and its dealers in 10 months of 1929. The company did not know how many Vollmer engines were operating in the territory; it was believed, however, that they nearly all were in planes owned by fixed-base operators and in privately owned

planes used for pleasure and for the transportation of executives and salesmen.

The company's first important decision on a trade-in allowance was made in September, 1929. The owner of a Sky-King plane the original cost of which was \$6,000 offered to purchase a new Sky-King plane of another model, selling at list for \$8,000. The prospective purchaser asked the sales manager for an estimate of the allowance he would grant.

The sales manager of the Parker-Weston Company believed that the used plane could be sold for \$4,000 if certain overhaul work were performed. At the moment, he knew of a possible purchaser of such a used plane at that price, and he was certain that the sale could be made almost at once. On the other hand, the service manager of the Parker-Weston Company estimated that the cost of the necessary overhaul would be \$850. Taking into account the overhaul cost and a small profit allowance, the sales manager decided to allow the customer a trade-in value of \$3,000. This estimate was accepted as fair by the customer, and the transaction was completed.

Shortly after this sale, another customer of the company asked for a trade-in allowance under circumstances essentially similar to those of the previous one, except that the sales manager of the Parker-Weston Company did not know of an immediate purchaser for the used plane. In this instance, the sales manager subtracted from the retail valuation of the used plane not only the overhaul cost, but also an additional amount to compensate the company for holding the used plane in its inventory.

A third important decision was made at about the same time. The owner of a Speedair³ two-place open-cockpit training and sport plane wished to trade it in on the purchase of a new Sky-King plane. The Speedair plane, which was manufactured by a well-known company, had a retail price of \$4,000; the retail price of the Sky-King which the customer desired to purchase was \$5,000. On his used plane the customer asked for an allowance of \$2,000. In itself, this was a reasonable request, since the sales manager estimated that the plane could be valued at retail at a price sufficiently more than \$2,000 to cover the cost of overhaul and to return a profit on an immediate sale. On the other hand, the nearest dealer for Speedair planes was 30 miles from

³ Fictitious name.

the metropolitan district in which the Parker-Weston Company carried on its retail activities, and the combination sport and training plane was a type not included in the Sky-King line and, therefore, one not sold by the Parker-Weston Company. The sales manager anticipated difficulty in finding a purchaser of a used plane of this type, since those desiring the particular make or type of plane would patronize the Speedair dealer, and the Parker-Weston Company would have no contact with them. Consequently, the sales manager was unwilling to extend an allowance exceeding \$1,000. As a result, the sale was lost, but the sales manager believed that under the circumstances it was better to lose the sale than to extend an allowance which he believed was not justified.

In the fourth instance, one of the Parker-Weston Company's dealers notified the company that he had an opportunity to sell a new Sky-King plane if he granted an allowance on the used plane owned by the customer. The dealer was unwilling to take the responsibility of making a valuation and of carrying the used plane in stock. Accordingly, he asked the Parker-Weston Company to appraise the used plane, to reimburse him for the allowance, to take title to the plane, and to grant the dealer the usual 15% discount on the sale of the new plane.

The sales manager of the Parker-Weston Company refused to grant the request. He stated that the dealer's margin of 15% was intended to cover the expenses and risks of his retail sales of planes, among which setting a valuation on used planes and, if necessary, carrying an inventory of used planes were clearly included. The sales manager added, however, that if he learned of any possible purchasers of such a plane, and if the Parker-Weston Company had no similar planes on hand, he would turn their names over to the dealer in an effort to help him to dispose of his stock.

COMMENTARY: There is a constant temptation for manufacturers and distributors of airplanes to draw analogies between their problems and those of the automobile industry and to pattern their policies and practices on those which that industry has adopted. Analytical comparison of the two industries should prove enlightening, but an uncritical assumption of parallelism is risky. This is particularly true in the case of the trade-in situation.

It is a matter of common knowledge that numerous automobile retailers, in attempting to make sales of new cars, go to extreme lengths in offering favorable terms for used cars. The result is, in effect, competitive bartering in which the nominal selling price of the new car loses significance, and gross margin on aggregate sales is pared to a dangerous point.⁴

The Parker-Weston Company was sufficiently strong minded to avoid being led into similar practices. The fact that the company had agreed to take a certain number of planes and had made a substantial deposit on each was no doubt an incentive to grasp any opportunity to make sales, especially since demand was not yet easily stimulated. But the company acted wisely in following a rational, temperate course, and its experiences provide a basis for indicating some of the factors to be taken into account in formulating a policy regarding trade-in allowances for airplanes.

The factors of chief importance in this connection are indicated by the following questions:

(1) Should the airplane manufacturer, the distributor, or the dealer have assumed responsibility for formulating trade-in policies?

(2) Should offering of trade-in allowances have been regarded as an active means of sales promotion?

(3) Was there any available method of determining and maintaining a uniform trade-in value for used airplanes?

The industry as a whole could well have made these questions the subject of study, in order to avoid the growth of uneconomical policies which would be increasingly difficult to uproot as time passed. Some airplane manufacturers have initiated plans for aiding their dealers by acting as clearing houses for information as to prospective customers and stocks of used planes on hand.⁵ As appears in the present case, specific knowledge of prospective purchasers for the second hand plane is important in deciding how much to allow or even whether to offer an allowance. The exchange of information by airplane manufacturers, therefore, is certain to be helpful; but further study on their part was surely desirable. Only if airplane manufacturers themselves assumed a major responsibility for studying the problem and suggesting feasible policies to their sales outlets, could uniform treatment of purchasers be assured; without such uniformity, the retailing of airplanes was unlikely to reach a satisfactory development.

At the time of this case, when the question of market expansion was paramount, offering of trade-in allowances should not have been used

⁴ For an attempt to counteract this practice, see Lewis Motor Car Company, 3 H.B.R. 156.

⁵ See Great Lakes Aircraft Corporation (B), p. 241.

as an aggressive means of sales promotion. Such a policy would have required that sales efforts be directed to persons already owning planes, whereas the need of the industry was to find new purchasers. New owners could be approached best with new planes, until all that segment of the market consisting of persons interested primarily in safety and performance, rather than in price, had been canvassed.

Dealers' margins, furthermore, did not appear adequate to permit of devoting much sales effort to the sale of used planes. In the first trade-in instance cited by the Parker-Weston Company, the margin was 25% on the new plane but only 18% on the whole transaction, including reconditioning and resale of the used plane. For dealers not enjoying the distributors' discount, the new plane margin was but 15%; a corresponding reduction in that margin to 10% or 11%, would have made acceptance of used planes a dubious practice under any circumstances.⁶

Until conditions in the aircraft industry changed markedly, therefore, the conservative attitude of the Parker-Weston Company toward trade-in allowances was well founded; further study and analysis of the problems by all concerned with selling airplanes was highly desirable. These studies should have sought, among other objectives, methods of determining and maintaining uniform trade-in values. Such methods did not exist early in 1930.

May, 1930

C. I. G.

⁶ For discussion of dealers' margins, see pp. 108-110.

25. SIMMONS AIRPLANE SALES COMPANY¹

DISTRIBUTOR—AIRPLANES

TRADE-INS—*Allowance Policies on Used Airplanes.* An airplane distributing company which had been accustomed to base the amount of the allowance on a used plane traded in on the purchase of a new plane on the history of the plane, its condition, and the ease or difficulty expected in disposing of it, became concerned over the severe competition prevailing among airplane distributors and dealers in making such allowances. In order to insure itself a profit on the sale of new planes and to avoid accumulating stocks of overvalued used planes, the company decided to set the maximum allowance granted to a purchaser on his used plane at the amount of the discount which the company was allowed on the new plane by the manufacturer.

(1930)

The Simmons Airplane Sales Company was an airplane distributor serving a large and populous middle-western state. The company had erected a modern hangar of brick, concrete, and steel construction bordering on the municipal airport of a city of nearly 1,000,000 population. At the hangar, the company maintained plane and engine servicing facilities and also carried on an extensive aerial taxi service, from which it had derived the principal part of its income in 1929. The aerial taxi service consisted principally of the transportation of business men on long-distance emergency trips or inspection tours; it included no short hop or flying school operations.

During 1929, the company had been the state distributor for a well-known make of cabin planes, the prices of which varied between \$10,000 and \$18,000, depending on the engines used and the capacity of the planes. The manufacturer granted the company a discount of 25% on each plane sold. During 1929, the company had sold 4 of these planes. In 1930, the company had accepted the state distributor's franchise from a prominent manufacturer of open-cockpit biplanes, ranging in price from \$4,000 to \$8,000. On this line of planes, the company also received a

¹ Fictitious name.

discount of 25%. Early in 1930, the executives of the Simmons Airplane Sales Company had become concerned over the severe competition prevailing among airplane distributors and dealers in making allowances on used planes traded in against the purchase of new planes.

Although it possessed the distributor's franchise for the planes which it sold, the Simmons Airplane Sales Company had not appointed dealers but had undertaken the retail sale of its planes throughout the state. To facilitate sales of planes and of aerial taxi services and to obtain additional contacts with prospective purchasers, the company had appointed 5 so-called "contact men" in 5 large cities within the state. The men were wealthy citizens who were prominent in sporting, civic, and commercial activities and interested in aviation. They notified the Simmons Airplane Sales Company of prospective purchasers and occasionally made sales themselves. The company granted these men a commission of 10% on all sales they completed and a commission of 5% on sales the company made to persons they had suggested. An executive of the company stated that it had been fortunate in obtaining contact men of an excellent type through the wide acquaintanceship of another executive.

In the past, the company had based the amount of the allowance for a used plane turned in against the purchase of a new one on the history and condition of the plane and the difficulty expected in disposing of it. The company attempted to find out as much as possible of the plane's history, such as the number of flying hours, whether it had been in an accident, and the type of service in which it had been employed. The used plane was then flown by a company pilot and given a thorough inspection by a mechanic in order to determine its physical condition. There were three ways in which the company disposed of used planes: some it sold to other users; some it sold as a whole or in parts to flying schools for disassembly by students studying the structural features of planes, or to plane users or dealers as sources of used parts; and, occasionally, it used a turned-in plane to augment its regular fleet of 3 taxi planes or to replace a worn out plane.

Before 1930, most of the company's sales were to customers who were purchasing planes for the first time. The company expected, however, that during 1930 the problem of setting allowances on used planes would become increasingly difficult. In

the first place, drastic price reductions on new planes had been made by many manufacturers, with the result that distributors' stocks of used planes had depreciated greatly in market value. Furthermore, overproduction in the industry had led manufacturers to exert pressure on retailers to increase sales, with the result that many retailers were quoting what the Simmons Airplane Sales Company believed to be unwarrantedly high allowances. Finally, retail purchasers of planes had become aware of this situation and, in order to obtain the highest possible allowances, they would visit a number of dealers to secure quotations on used planes, leading the dealers to bid against each other.

The executives of the Simmons Airplane Sales Company desired a method for regulating the size of the allowances on used planes that would insure the company a profit on the sale of new planes and that also would enable the company to avoid accumulating stocks of used planes. The executives decided to set the maximum allowance for a used plane offered in part payment for a new plane at the amount of the discount which the company was allowed by the manufacturer on the new plane. The executives believed that this would make sales operations profitable, since selling expenses, according to the company's accounting methods, were negligible, and the selling price of used planes consequently would be nearly all clear profit. It was the opinion of the executives that the company might lose some retail sales by strict adherence to this policy, but that such loss would be preferable to accepting used planes at inflated prices.

COMMENTARY: The experience cited in this case indicates that the offering of trade-in allowances as a means of price competition already had become a fact. The hampering effects of this type of sales effort upon market expansion are brought out elsewhere and do not need to be repeated.² The practices of the Simmons Airplane Sales Company, however, involve considerations not specifically developed in the other cases on trade-in policies.

It had been the company's practice to base the allowance to be given for a used plane upon an analysis of the plane's value in resale, taking into consideration the probable use to which it would be put and, presumably, the costs of reconditioning. The merit of this practice requires little elaboration. By focusing attention on the prices which

² See cases of the Parker-Weston Company (B), p. 247, and the Great Lakes Aircraft Corporation (B), p. 241.

probably could be secured for the used planes, rather than on the possibility of selling new planes, the company's policy was well designed to prevent excessive bartering over trade-in allowances.³ Probably a still more important feature of this approach was that it tended to encourage the removal from the market of planes that had reached the point where further flight would be unsafe or uneconomical.

When, however, the company decided to bring into its used plane valuations the factor of margin on the new plane involved, it took a step toward valuation based on the strength of its desire to sell the new plane. This step carried with it the risk that the company might disregard the actual resale value of the used plane. The amount of the margins on new planes varied with the value of the new planes and had no direct relation to the resale value of used planes offered in trade. Once the principle was introduced of varying allowances according to sales needs rather than according to the resale value of the used planes after reconditioning, the company's marketing position was weakened, even though the gross margin on new planes was to be regarded simply as a maximum figure.

It is easy to understand the force which factors of expediency, especially the widespread accumulation of inventories, exerted in causing the company to shift its ground. Yet the shift was to be regretted: it meant turning at least partially from a sound valuation basis, and it increased the temptation to use a sales approach not suited to the existing need for market expansion.

This case supports the conclusion already advanced that trade-ins present a marketing issue which merits cooperative study by airplane manufacturers and their sales outlets, as well as by airplane engine manufacturers and distributors.

June, 1930

C. I. G.

³ See case of the Lewis Motor Car Company, 3 H.B.R. 156.

26. LORIMER ENGINE COMPANY¹

MANUFACTURER—AIRCRAFT ENGINES

WARRANTIES—*Administration of.* A manufacturer of aircraft engines gave a warranty of each new engine's freedom from defects in material and workmanship for 90 days after its shipment from the plant. In deciding claims for replacement of parts, the company took a liberal attitude, assuming that claims were justified unless it could prove that they were not and in some cases making adjustments for costs not included in the warranty. The company maintained a department for the inspection of all parts claimed to be defective, for the purpose of ascertaining the causes of failures of parts. In doubtful cases the company assumed that the user's claims were justified.

(1929)

From time to time the Lorimer Engine Company, located in the middle western part of the United States, received requests from users of the airplanes in which its 90 and 140 horsepower aircraft engines were installed for free replacement of parts claimed to be defective or for reimbursement for damage resulting from the failure of parts. Although nearly all these claims were thought to have been made in good faith, it often was difficult for the company to draw the line between those which should be allowed and those which should be refused.

The Lorimer Engine Company sold 90% of its engines directly to airplane manufacturers who installed them as original equipment in their planes; the remaining 10% was sold to users of airplanes, who installed them to replace worn out engines. Airplane manufacturers customarily did not assume responsibility for the performance of the engines in their planes.

The Lorimer Engine Company gave a formal warranty with each of its motors. This warranty was similar to those given by other aircraft engine manufacturers and specified that:

The Lorimer Engine Company warrants each new engine to be free from defects arising from material and workmanship for

¹ Fictitious name.

ninety days after the shipment of the engine from the factory when correctly installed and operated under normal conditions. This warranty applies only to replacing or repairing in its shops any part or parts which have been returned, transportation charges prepaid, to the Lorimer Engine Company, and which, in the opinion of the company, are defective. This warranty is expressly in lieu of all other warranties and representations, expressed or implied, and all other obligations and liabilities on the part of the Lorimer Engine Company.

This warranty does not include labor charges for the replacement of defective parts on Lorimer engines; nor does it include adjustments, repairs or other work performed on Lorimer engines.

This warranty does not apply to any engine which has been altered or repaired by any other party but the Lorimer Engine Company if such repair or alteration has, in our judgment, the possibility of affecting its efficient operation. Nor does this warranty apply to any engine which has been subject to misuse, accident, or negligent operation or care; nor does it apply to those engines which have been operated at a speed higher than that at which the engine is rated by the factory.

The Lorimer Engine Company makes no warranty with respect to magnetos, carburetors, or other trade accessories furnished with the engine, since they usually are warranted separately by their respective manufacturers.

In seeking adjustments for defective parts, plane operators either dealt directly with the company or with its authorized parts and service agencies. If a plane operator followed the latter course, he turned in the defective part to the agent and obtained a replacement part from him at the customary price. The agent then sent the defective part to the factory, together with a complete description of the circumstances surrounding the failure, the number of flying hours the part had been in use, the number of the engine, and the name of the operator. The Lorimer Engine Company then decided whether or not the claim was justified; if it was, the agent credited the operator's account with the cost of the part and the company reimbursed the agent for this credit. If the claim was not allowed, the company notified the operator to that effect. If the operator negotiated directly with the company, the company, if it allowed his claim, either credited him for the part on its books or made a cash payment to him.

In interpreting the terms of the warranty, the Lorimer Engine Company took a liberal attitude, assuming that claims were

justified unless it could prove that they were not. Although the warranty expressly relieved the company of the labor costs in replacing defective parts, and although there was no provision for reimbursement for damage caused by use of defective parts, the company sometimes made adjustments covering these costs. Thus, a company mechanic might be sent without charge to help an aircraft operator in repairing his engine when expert attention was required and a man familiar with Lorimer engines could not be found in the vicinity. In making reimbursements for damage alleged to have resulted from use of a defective part, the company applied the test of reasonableness and attempted to make reimbursements only for damage directly attributable to the failure of the part. For example, the connecting rod of an engine might break and cause further damage to the motor. If the company was satisfied that the connecting rod was defective, other parts damaged by the failure often were replaced free of charge. If, however, the plane was forced down as a result of the connecting rod failure, the company refused to reimburse the owner for damages to the plane itself.

Although the company endeavored to be as liberal in its replacement policies as sound business practice permitted, nevertheless other manufacturers of aircraft engines sometimes were even more liberal. The company was convinced that some of these manufacturers produced inferior products and were forced to grant the claims of users, however unjustified, in order to make sales. As a result, many operators of aircraft had come to expect an extremely liberal interpretation of warranties, and it was correspondingly difficult for the Lorimer Engine Company to disallow claims.

To protect itself against excessive claims, the company maintained a man who inspected all parts which were held to be defective by operators. The duty of this inspector was to ascertain to the best of his ability the cause or causes of the failure of the parts. The inspector, expert as he was, often found it difficult to decide upon the exact cause for a failure. However, by virtue of his thorough familiarity with the usual causes of failures, with the appearance of defective parts, and with those parts which were particularly subject to abuse by operators, and in view of the study he made of the circumstances surrounding each failure, the inspector, in the company's opinion, arrived at the correct conclusion in a

great majority of instances. In doubtful cases, it was assumed that the operators' claims were justified.

Failure of parts could arise from one or more of several causes: normal wear and tear; excessive wear and tear caused by such abuses as improper lubrication, improper adjustment by the user, or improper installation or use of the engine; inferior materials; inferior workmanship; or improper engine assembly. Executives of the Lorimer Engine Company were convinced that the company took every possible precaution to prevent failures arising from those causes over which it had control. All materials and parts were subjected to several rigid inspections during manufacture and high standards were adhered to strictly. After assembly, each motor was given a block test of several hours' duration and then was torn down for another inspection of all parts. The motor was then reassembled and subjected to another block test before it was shipped.

It sometimes happened that a certain series of engines developed a common flaw under operating conditions, in spite of the rigid tests which were conducted at the factory. Such a situation would be evident from the number of similar claims for replacements. In cases of this kind, the company customarily waived inspection of the parts and granted all similar claims without question.

The decision as to the disposal of a claim was made by the service department of the Lorimer Engine Company, on the basis of the agent's and the inspector's reports. The inspector's report to the service department included the name of the operator, the number of the engine, the number of hours during which the engine or part had been in use, identification of the part, its condition upon receipt, and the probable cause of the failure. The decision of the service department was subject to review by the sales manager when the judgment appeared to be of especial importance from the standpoint of policy.

In routine cases of adjustment, when the value of the parts involved was small or the failures added nothing new to the experience of the company, the inspector's reports were sent only to the service department. In unusual instances, involving parts which hitherto rarely had failed, or in instances that gave any indication that the design, manufacture, or assembly of the engines had caused the failures, duplicates of the reports were

sent to the chief engineer and to the factory manager for their consideration. In this way, the company discovered and was able to remedy faults in its production plans and processes.

In one case, this use of the inspector's reports had proved particularly valuable. Within one month several claims were received for the failure of an important part. When these were brought to the attention of the engineering department, it was discovered that the failures were due to the excessive hardness of the steel used in fabrication. As a result, the company began to use steel of a different quality. It notified all operators who were using this type of engine that such failures were likely, and it furnished new parts to all operators regardless of whether the part already had failed. The company sent out a force of mechanics to make the installations. All labor, materials, and tools were furnished free of charge; if an operator had the work performed by a servicing company, he was reimbursed.

Three cases of claims presented in June, 1930, illustrated the variety of the demands made upon the Lorimer Engine Company by users of its engines. In one instance, the engine of a plane operated by an individual in Illinois had failed while the plane was in flight because of a cracked cylinder wall. Although the plane was landed safely, the entire cylinder and piston assembly was badly damaged. Since the plane landed at a place distant from a Lorimer service agency, the owner of the plane negotiated directly with the Lorimer Engine Company.

In making his claim, the owner stated that the engine had flown only 120 hours, whereas a service of at least 1,000 hours should be obtained. Because of this, he asked the company to furnish him with an entirely new engine at a cost ratio of 120/1,000, or 12% of the list price, as well as to reimburse him for labor charges. He was unable to determine the cause of the failure; his only statement was that the engine had failed while in operation. Upon the receipt and inspection of the damaged parts, the inspector submitted a report to the service manager, describing in detail the extent of the damage to the parts, and stating that he was unable to ascertain the real cause of the failure. On the basis of this report, the Lorimer Engine Company notified the owner that replacements of all parts on which claims were made would be furnished him free of charge, but that the company did not feel justified in supplying a new engine on the terms demanded

nor in reimbursing him for attendant labor charges. The company believed that its decision was fair. The owner was granted the benefit of the doubt as to the cause of the failure, since the inspector had been unable to ascertain the cause, and, with the damaged parts replaced, the engine would be in first-class condition. It seemed to the company that to furnish a new engine under such conditions would be unsound practice. The owner of the plane protested violently, but the company refused to yield, and he finally acceded to the company's terms.

In another instance, a fixed-base operator who used his plane for short hop and taxi services returned a broken crankcase for replacement free of charge. Inspection of the part revealed that cracks radiated from several of the stud holes and that one of the flanges was bent. There was no indication of a blow-hole, start of a fracture, or other fault in the metal, and the inspector reported that the bent flange and the cracks could have been caused only by a blow from some external body. Consequently, the Lorimer Engine Company concluded that the cause of the failure was beyond its control, and the claim was denied.

The third claim resulted from the faulty installation of a Lorimer engine in a plane which was being developed by an experimenter who planned later to build a factory for commercial production. A representative of the Lorimer Engine Company had advised the inventor that the cowlings of the plane was so designed that the engine was inadequately cooled; nevertheless, the installation was made as originally planned. After the plane had undergone a few tests, two pistons failed. The inventor returned the entire engine to the Lorimer Engine Company for replacement free of charge, claiming that it was defective. Inspection revealed that there was a flaw in one piston which might have caused a failure irrespective of operating conditions; this part was replaced without charge. The other piston had been installed in that cylinder which was most likely to overheat as a result of the faulty installation, and no flaws could be found in it. Consequently, the company decided not to replace that piston.

COMMENTARY: A manufacturing company in the initial stages of any industry where experimentation with design and manufacture is a factor of importance must necessarily expect to have an extremely liberal warranty policy. This is even more true in the aviation motor

industry than elsewhere because of the critical importance of engine performance and the serious consequences of engine failure.

Consequently the warranty policy followed by the Lorimer Engine Company should certainly not have been any less liberal. In fact, a slightly more liberal policy would appear to have been desirable. The user in all instances should have had the benefit of the doubt, and it seems not unreasonable that labor charges should have been borne by the motor manufacturer where his product was at fault.

In the situation existing in the aviation motor industry in 1929 it was particularly important for an engine manufacturer not only to gain the goodwill of his customers but also to be thoroughly familiar with the users' experience with and attitude toward his product. He needed to secure as complete data as possible on the performance of his product in the hands of users in order to obtain a basis for improvement, inasmuch as tests of such a product in use were quite likely to reveal difficulties not detected in factory tests. For these reasons it was desirable for the Lorimer Engine Company to encourage rather than to discourage all claims and requests made by users under the terms of its warranty policy.

In the stage of development in which the aviation motor industry found itself in 1929, a manufacturer certainly was justified in setting prices high enough to establish an adequate reserve to meet the costs of a liberal warranty policy.

June, 1930

M. P. M.

27. FLEET AIRCRAFT, INC. (C)¹

MANUFACTURER—AIRPLANES

PRICING—*Revision in List Prices and Dealers' Discounts.* Believing that existent high prices of airplanes were the primary reason for the market's relatively limited development, an airplane manufacturing company decided to lower the list price of its product and to attempt to persuade its dealers to give each purchaser of a plane a free flying course. At the lower price, an extra discount of approximately 5% to dealers would be necessary in order to return to them the same margin in dollars that they had received under the former price. The company decided to absorb this 5% increase by selling planes to dealers at the factory cost.

(1930)

Early in 1930, Fleet Aircraft, Inc., of Buffalo, New York, had decided to replace its marketing organization of distributors and dealers with one consisting of dealers alone. After this decision, the president of Fleet Aircraft, Inc., was faced with the problem of reducing the initial cost, to the individual purchaser, of owning an airplane, as an additional means of promoting the sale of Fleet planes. In his opinion, the market for airplanes was highly elastic; he was convinced that the cost of owning an airplane, and not fear, was the reason for the market's relatively limited development. Two means of reducing the cost involved in owning a plane were suggested: the list price of the Fleet plane could be reduced; and the company could attempt to persuade its dealers to give flying courses without charge to individual purchasers of planes.

Fleet Aircraft, Inc., was a wholly-owned subsidiary of the Consolidated Aircraft Corporation, which, in 1929, was the largest independent manufacturer of airplanes in the United States. The sales of the Consolidated Aircraft Corporation in 1929 exceeded \$5,000,000, and the company had returned a profit annually since 1924. The corporation and its subsidiaries manufactured patrol, observation, and training planes for the United States Army and Navy, and three types of commercial planes: the

¹ See also Fleet Aircraft, Inc. (A) and (B), pp. 127 and 152.

Fleetster, a high-speed, 8-place, cabin monoplane; the Commodore, a 30-passenger, twin-motored flying boat; and the Fleet, a commercial adaptation of the company's Army and Navy training plane.

In 1929, 217 Fleet planes had been sold, representing approximately 20% of the total sales of the Consolidated Aircraft Corporation. Of these, 50 were in the hands of individual owners who used Fleet planes for pleasure flying; the remainder were in the hands of flying school operators who used the planes for flight training. At that time, the list price of the Fleet was \$4,985. The company stated that, at that price, it was the highest priced 2-place, open-cockpit training plane on the market. The company's experience had been that the operating cost of the Fleet, including depreciation on the plane and engine based upon the list price of the completed unit, was \$6.55 per hour, or, at 85 miles per hour, 7.7 cents per mile.

Early in 1930, the company had obtained the services of approximately 25 dealers; by the end of the year, it was expected that the number would be increased to 100. Dealers sold planes in open territory to individual purchasers. They were almost invariably fixed-base operators, located at an airport or flying field, who performed such aerial operations as aerial taxi and photography service and gave flying instruction in addition to selling planes and providing plane and engine service. In most cases, the dealer depended upon flying school operations for a large, if not the major, portion of his income.

In an effort to stimulate the sale of Fleet planes to individual purchasers, early in 1930, when it decided to reorganize its marketing organization, the company also considered making a substantial reduction in the list price of the Fleet plane. In order to return to the dealer the same discount in dollars that he had received under the discount of 20% of the previous list price, it would be necessary, with a lower list price, to increase the dealer's discount. The company believed that an increase in the discount was essential if the dealers were to make a profit; it also believed that, unless dealers could make a profit in selling Fleet planes, the distributing system of Fleet Aircraft, Inc., would collapse.

The president of Fleet Aircraft, Inc., was of the opinion that a reduction in the list price of the Fleet from \$4,985 to \$3,985

would be desirable from the point of view of increasing sales. At the new price, an extra discount of approximately 5% to dealers would be necessary in order to return to them the same margin in dollars that distributors had received under the former discount of 20% on a list price of \$4,985. At a list price of \$3,985, and with a dealer's discount of 25%, the net return to the company would be \$2,988.75; since the net cost of the engine to the company was \$1,200, the company would receive \$1,788.75 for the manufacture of the plane itself, which represented little or no more than the cost of production. Nevertheless, the president of Fleet Aircraft, Inc., decided to adopt the proposed list price and to allow dealers a 25% discount.

Two major factors were influential in leading the president to this decision. In the first place, Fleet Aircraft, Inc., had at its disposal the large resources of the Consolidated Aircraft Corporation, which would enable it to sell planes without profit for an appreciable period and still remain in business; without these resources, the president was convinced that such a policy would not have been practical. In the second place, it was expected that the substantial reduction in the list price of the Fleet plane and the anticipated expansion of the company's retail organization to include 100 dealers would enable the company to sell from 300 to 400 planes during 1930. From experience gained in his position as general manager of the Consolidated Aircraft Corporation, the president of Fleet Aircraft, Inc., estimated that only the first 200 planes sold at the new price would be sold at cost. On additional sales, he believed that the company would receive a small profit through economies arising from the quantity production of parts and from a more specialized division of labor in assembly.

As a second method of reducing the initial cost of owning a Fleet plane to the individual purchaser, the president of Fleet Aircraft, Inc., decided to attempt to persuade the company's dealers to give each purchaser of a Fleet plane a free flying course covering the United States Department of Commerce requirements for a private pilot's license. The usual price charged for this course by flying schools was from \$400 to \$600. It included elementary ground instruction in rigging, engine operation, and navigation, and several hours' instruction in actual flying. Upon receipt of a license, after examination by Department of Commerce

inspectors, a private pilot was privileged to pilot licensed single-motored planes. He could carry passengers and merchandise, but not for hire.

The president of the company realized that, at first glance, it might appear impossible to convince a Fleet dealer operating a flying school to give, free of charge, a course for which he ordinarily charged \$400 to \$600, especially since flying school operations were often the fixed-base operator's principal source of income. Nevertheless, the president regarded as unsound the usual situation, in which the purchaser of a plane was also required to pay for learning to fly. He did not know of any other instance in which the purchaser of a commodity was required to pay an additional price in order to learn to use it. In his opinion, the cost of learning to fly a plane was a serious obstacle to the purchase of planes by individuals for pleasure flying.

If a person took a private pilot's course prior to the purchase of a plane, the flying school operator supplied a plane. Under this arrangement the operator incurred the cost of a ground instructor, a pilot, gasoline, oil, plane and engine depreciation, insurance, maintenance, and hangar storage. After an allowance for these charges was made, it was judged that the flying school operator's profit was not large. On the other hand, if a person first purchased a plane and then received instruction, the flying school operator's expenses were reduced to the cost of a ground school instructor, who conducted classes but did not deal individually with each student, and a pilot, who gave each student individual flight instruction. The owner of the plane purchased gasoline, oil, repair and maintenance service, and hangar space from the flying school operator, and also bore the insurance and depreciation charges involved. The cost to the operator of providing a flight instructor for 10 hours of flight varied between \$50 and \$80.

The president of Fleet Aircraft, Inc., believed that the arguments in favor of free flight instruction to purchasers of planes were difficult to refute. The only outright expense incurred by the operator in giving instruction to a plane purchaser was the cost of the flight instructor, since an additional student did not affect the cost of ground instruction; to offset this expense, the operator by giving instruction free could, in the president's opinion, increase appreciably his income from the sale of planes.

In addition, the operator would profit from the sale of gasoline, oil, service, and storage space to the purchaser, since most individual purchasers continued to store their planes and to obtain service at the hangar of the dealer from whom they had secured the planes.

COMMENTARY: In this case Fleet Aircraft, Inc., was confronted with the following issues:

- (1) Whether sales could be substantially increased by a reduction in the cost of owning planes.
- (2) Whether it was desirable to increase the discount allowed to dealers.
- (3) Whether, in the event of an affirmative decision on the first issue, it was desirable to reduce prices to cost or to retain some margin of profit.
- (4) Whether the company should seek to induce dealers to give free instruction in flying to purchasers of planes.

It is significant that at the time of this case more than three-quarters of the Fleet planes in the hands of users were owned by flying school operators. Although such a situation was a logical consequence of the fact that the company's chief product was a commercial adaptation of an Army and Navy training plane, it is obvious that, if Fleet Aircraft, Inc., in the long run was to obtain a substantial volume of sales, it had to seek means of getting a larger number of planes into the hands of private owners.

The next significant point is that the company's dealers were almost invariably fixed-base operators, depending on such fixed-base operations for a large part of their income. Naturally, therefore, their interest lay largely in promoting the profitable use of planes in fixed-base operations rather than in aggressively selling planes to individual users. The difficulties presented by this case, furthermore, were aggravated by the fact that the discounts offered to dealers apparently did not permit them to make an adequate profit from the sale of planes.

The conclusion is inescapable, therefore, that one of the primary reasons why there were not more Fleet planes in the hands of private owners was to be found in the type of distributing organization which Fleet Aircraft, Inc., was using. Under these circumstances a reduction in price would not be expected to result in any substantial increase in sales volume. Even, however, if the situation as regards distribution had been different, it is by no means clear that a reduction in price would have stimulated substantial sales to individual owners. Before the average individual buys a plane, he wants to have four questions answered to his satisfaction:

- (1) What can he do with the plane?
- (2) How safe is flying?
- (3) How easy is flying?
- (4) How much does it cost to own a plane?

It is the commentator's opinion that in the stage of development of the aviation industry existing in 1929 the first three questions were by all odds more important than the last one. The potential individual owner of a plane was as yet unable to visualize what he would do with a plane if he owned one. Relatively few persons could be induced to buy planes merely for the thrill of flying; to a great majority of potential plane owners aviation had to be sold as a means of transportation. After that was accomplished, the questions of safety and ease of flying both had to be answered prior to the question of cost of flying. It may be concluded, therefore, that Fleet Aircraft, Inc., under the conditions described in this case did not have a good possibility of substantially increasing the volume of sales to individual owners by means of a reduction in price.

As regards the second issue, the policy of increasing dealer discounts in order to permit dealers to obtain an adequate profit from the sale of planes was sound in any event. Satisfactory distribution of planes could not be obtained until dealers were in a position to make reasonable profits from the sale of planes. As regards the third question, the policy followed by the company of cutting the price to cost would have been sound if the conclusion on the first question had been valid, since increased sales volume would have enabled the company to effect some reductions in costs.

With respect to the possible desirability of inducing dealers to give free instruction in flying to the purchasers of planes, the facts as stated in the case indicate that such a policy might not have been appreciably more expensive for the dealers; but it might have been difficult to convince dealers of this fact, inasmuch as many of them depended on the operation of flying schools for a substantial part of their income. This particular issue would have presented less difficulty if Fleet Aircraft, Inc., had been using a different type of dealer. There were other angles than that of cost, however. If a substantial market for planes was to be developed among individual users, it was probable that free flying instruction eventually would have to be provided for many purchasers of planes, with flying schools assuming the primary function of training commercial pilots. The step proposed by Fleet Aircraft, Inc., was possibly therefore in line with a logical tendency; but it is not entirely clear whether such a step was premature in the existing stage of development of the industry in 1929. Conceivably the practice of offering free flying instruction to individual buyers of airplanes should have

waited on further technical developments and better organization of distribution channels.

Incidentally, it may be remarked that the policy of Fleet Aircraft, Inc., in eliminating wholesale distributors from its distribution organization was a step in the right direction.

June, 1930

M. P. M.

28. STINSON AIRCRAFT CORPORATION (C)¹

MANUFACTURER—AIRPLANES

PRICING—*Reduction in List Prices.* A company manufacturing airplanes suitable for use by fixed-base operators, business firms, transport lines, private users, and government departments, sought to increase substantially the sales of its products to individuals. Believing that high price was one of the most important obstacles to such an increase, the company decided to reduce its list prices markedly, in the hope of securing compensating economies in production and selling costs. To enhance the effectiveness of the price changes, the company also decided to advertise extensively to consumers and to aid distributing firms to improve their sales methods.

(1930)

Since its formation in 1926, the Stinson Aircraft Corporation had increased its sales steadily, until, in 1929, they exceeded \$1,000,000. Executives of the company were convinced, however, that the high retail price of the company's airplanes was the dominating factor in preventing a much larger increase. This high retail price, in turn, was attributed principally to the expense involved in marketing Stinson planes. In an effort to reduce the marketing cost by appealing to a wider number of potential purchasers, and thus making the plane easier to sell, the company decided, in the early months of 1930, to reduce the prices of its planes drastically.

The Stinson Aircraft Corporation, located near Detroit, Michigan, was organized in 1926 to produce cabin monoplanes exclusively, and it started the commercial production of such planes in 1927. The company stated that during 1929 it had sold more cabin planes than any other company in the United States. In November, 1929, the company was absorbed by the Cord Corporation, a holding company in the automotive field. Other important subsidiaries of the Cord Corporation were the Auburn Automobile Company, of which Mr. E. L. Cord was

¹ See also Stinson Aircraft Corporation, (A), (B), (D), and (E), pp. 234, 238, 302, and 318.

president, and the Lycoming Manufacturing Company, of which he was chairman of the board of directors. The Lycoming Manufacturing Company produced a wide line of internal combustion engines for use in automobiles, tractors, and boats; late in 1929 it was ready to start commercial production of the 9-cylinder air-cooled radial aircraft engines of 210 horsepower which it had developed.

Executives of the Stinson Aircraft Corporation stated that, while Mr. E. L. Cord was in a position to dictate his desires to subsidiaries, in no instance had he forced his policies on a subsidiary, although in many cases he had been the sole originator of new policies. He maintained close personal contact with the executives of subsidiaries and had always obtained their consent and approval prior to putting a new policy in operation, in the belief that new policies, even though they might be demonstrated as advantageous, could not succeed without the full cooperation of other executives.

In 1926, the Stinson Aircraft Corporation manufactured and sold 8 planes; in 1927, 34; in 1928, 97; and during the first 11 months of 1929, 146. Income figures for 1927 through the first 11 months of 1929 were as shown in Exhibit 1, and balance sheet figures, December 31, 1927 to November 30, 1929, were as given in Exhibit 2.

EXHIBIT 1

COMPARATIVE INCOME ACCOUNT OF STINSON AIRCRAFT CORPORATION,
YEARS ENDED DECEMBER 31, 1927 AND 1928, AND NOVEMBER 30,
1929

	1927	1928		1929*
Net Sales.....	\$451,880	\$1,158,769	Net Sales.....	\$1,361,839
Cost of Sales.....	370,407	816,732	Cost of Sales.....	964,828
Operating Expense...	53,768	191,248	Selling, General & Administrative....	
Operating Income..	\$ 27,705	\$ 150,789	Expense.....	342,769
Other Income.....	3,963	9,422	Depreciation.....	15,020
Total Income.....	\$ 31,668	\$ 160,211	Operating Profit....	\$ 39,222
Federal Taxes.....	2,539	17,417	Other Deductions, Net.....	24,137
Miscellaneous Deduc- tions.....	6,569	15,071	Federal Taxes, Es- timated.....	1,400
Surplus for Year...	22,560	127,723	Net Profit.....	\$ 13,685
Earned per Share....	\$ 0.18	\$ 1.03		

* 11 Months Ended November 30.

EXHIBIT 2

COMPARATIVE BALANCE SHEET OF STINSON AIRCRAFT CORPORATION,
AS OF DECEMBER 31, 1927 AND 1928, AND NOVEMBER 30, 1929

	1927	1928	1929*
Assets			
Plant and Equipment after Depreciation.....	\$ 17,222	\$ 25,516	\$259,356
Goodwill.....	50,500	50,500	45,500
Funds in Escrow.....		201,687
Deferred Charges.....	20,325	39,795	9,648
Cash.....	39,631	84,392	102,189
Accounts Receivable.....	3,497	6,618	22,480
Inventories.....	106,573	186,634	156,426
Other Current Assets.....			9,415
Total.....	\$237,748	\$595,142	\$605,014
Liabilities			
Capital Stock.....	\$200,810	\$400,810	\$400,810
Accounts Payable.....	11,300	26,099	34,631
Customer's Deposits.....	8,625	6,650
Accruals.....	2,332	4,301	14,749
Reserve for Federal Taxes.....	2,539	17,417	5,445
Surplus.....	12,142†	139,865	149,379
Total.....	\$237,748	\$595,142	\$605,014

Working Capital: 1927, \$124,905; 1928, \$223,177; 1929, \$235,685.

Capital Stock: Authorized, 140,000 shares no par; outstanding, 1928, 123,780 shares; 1929, 124,043½ shares.

* As of November 30.

† Deficit.

In 1929, the line of airplanes manufactured by the Stinson Aircraft Corporation included four models: two models of the Stinson Junior, the Stinson Detroider, and the Stinson Wasp. One model of the Stinson Junior, a 4-place cabin monoplane, was powered by a 165 horsepower motor and was sold at a retail price of \$8,850; the other model of the Junior, powered by a 225 horsepower motor, was sold at a retail price of \$10,500. The Stinson Junior had been developed primarily to appeal to those purchasers who would use it for private purposes, for aerial taxi service, or for the transportation of business executives and salesmen. It was designed and equipped to furnish comfortable aerial transportation, and the company believed that its principal potential market was among those purchasers who would use it for pleasure flying and for family transportation.

The Stinson Detroiter was a 6-place cabin monoplane equipped with a 300 horsepower motor, selling at retail for \$13,500. The market for this model consisted principally of transport lines, aerial taxi operators, and industrial companies. The 8-place Stinson Wasp, was priced at \$19,500, had a 425 horsepower engine, and was designed principally to appeal to transport lines, although additional users might be found among aerial taxi operators and business firms.

Prior to 1930, most of the company's sales had been made to fixed-base operators, business firms, and private individuals; approximately one-sixth, however, had been sold to air transport lines, and occasional sales had been made to the federal and state governments. No sales were made to the United States Army or Navy.

Since its formation, the Stinson Aircraft Corporation had pursued a conservative policy in manufacturing; it never allowed production to exceed the actual orders on hand. Executives of the company believed that this policy had been principally responsible for the company's ability to return a profit from operations in each year of its existence.

Three obstacles, in the company's opinion, prevented more widespread private use of planes. One was the high retail price; another was the fact that few potential purchasers of planes realized that the development of airplanes had reached a point where they could be operated nearly as easily as automobiles; and finally, few individuals realized that there was a personal need for airplane transportation. The company planned to attempt to overcome the last two difficulties by an extensive advertising, sales promotion, and demonstration program, but the elimination of the price difficulty without deviating from the company's fixed policy of operating at a profit presented serious difficulties. Nevertheless, the company believed that the general adoption of the airplane as a means of personal transportation necessitated a drastic downward revision of the price level.

Executives of the Stinson Aircraft Corporation believed that by 1929 the Stinson plane had reached such a high state of development that it was ready to meet the requirements of dependable transportation and to compete with other means of transportation on an equal footing with respect to comfort and on a superior one with respect to speed. Its stability, safety, and ease of

handling were held to be such that a novice could fly it once it was in the air; landings and take-offs required instruction, but such instruction was not much more difficult than that needed in learning to drive an automobile, and professional pilots were not necessary after the operator had learned to fly. The plane was as comfortable as an automobile of the same capacity and, in 1930, the company planned to add such equipment as electric self-starters and smoking sets further to enhance the similarity to an automobile and the appeal to private pilots who would fly the planes much as they would drive their automobiles, and for the same purposes.

A reduction of about 50% in the retail price of Stinson planes, it was believed, not only would increase sales to private users, but also would increase sales to professional and business users, since the principal costs of aerial transportation, which were depreciation, obsolescence, and insurance, thereby would be lowered; as a result, aerial taxi operators and transport lines could charge lower rates, and more business firms would be placed in a position to make profitable use of airplanes.

In the company's opinion, two classes of potential purchasers of airplanes for business or private use were prevented from buying them by the high price; namely, the moderately wealthy and progressive, who could not afford to pay \$10,000 or more for a private plane, and those who were sufficiently wealthy to purchase a plane at even a higher price, but who refrained from doing so because they believed the return in satisfaction could not justify the expenditure.

In an effort to facilitate purchase by private individuals, some airplane manufacturers had made arrangements with finance companies for purchase by time payments. The Stinson Aircraft Corporation did not favor this course of action; in the company's opinion the insurance and financing charges of finance companies entering the aviation field were exorbitant, often exceeding 30%, and cancelled any advantage which time payment privileges might otherwise offer. Furthermore, finance companies usually insisted that the manufacturer agree to repurchase planes upon which payments had been defaulted. The company believed that the result of this was to throw the risk back to the manufacturer, while the finance company received payment for assuming it. Consequently, the Stinson Aircraft Corporation had made

no agreements with finance companies. On the other hand, it extended the date of payment if sufficient collateral was provided by the purchaser, and in this way, it believed, it extended the benefits of time payments with little risk to itself and at little expense to the purchaser.

The president of the company stated that the costs involved in the manufacture and sale of the Stinson Junior, selling at \$10,500, were approximately as follows:

	Cost	% of Retail Price
To Retail Purchaser.....	\$10,500	100.0
To Distributor.....	8,400	80.0
To Factory.....	4,800	45.7

Factory costs were divided approximately as follows:

	Cost	% of Factory Cost	% of Retail Price
Labor.....	\$ 800	16.6	7.6
Materials.....	1,200	25.0	11.4
Engine.....	2,600	54.2	24.8
Overhead.....	200	4.2	1.9
Totals.....	\$4,800	100.0	45.7

Reasoning from the theory that a substantially reduced price would result in a greatly increased demand, the executives reached the conclusion that economies could be effected in the manufacturing cost of planes under a lower retail price schedule. The company could reduce the cost of labor by the installation of machine processes which under the former rate of production had been too expensive to justify their use. It could secure lower prices on materials by making definite commitments for large quantities, rather than suggesting to suppliers, as it had in the past, that it would purchase a large quantity during the year but would make definite commitments for only small quantities. The executives doubted that aggregate overhead costs could be reduced, but increased production would reduce the overhead cost per unit.

From four to six days were required to assemble a complete plane, but the fabrication of the various assembly units took a considerably longer time. The engine, flying instruments, and a few other parts entering into the completed Stinson plane were purchased from other manufacturers. The major part of the

plane, however, was assembled from parts fabricated at the factory from such raw materials as steel tubing, lumber of high quality, and cloth. These raw materials could not be purchased in conjunction with purchases made by other companies included in the Cord Corporation, since there was little similarity between the manufacturing supplies used in airplanes and in automobiles; such similarity as existed was limited to a few materials such as upholstery and plate glass.

The entrance of the Lycoming Manufacturing Company into the aircraft engine field was expected to be helpful in reducing the factory cost of Stinson Junior planes. The 210 horsepower Lycoming motor was well adapted for use in those planes, and the Lycoming Manufacturing Company quoted prices on its engines on the basis of the quantity ordered instead of on the basis of fixed discounts from list prices, as was usual among other aircraft engine manufacturers. By making definite commitments for 500 or more engines, the Stinson Aircraft Corporation would be able to obtain Lycoming engines on favorable terms.

While such an arrangement for purchasing engines would permit a decrease in retail prices and still insure a profit to the company, it would not allow the 50% price reduction which the executives believed necessary to stimulate demand fully. If, however, the company, by effecting a substantial reduction in selling expense, could reduce the margin between factory cost and retail price, which for the \$10,500 Stinson Junior amounted to 54.3% of the retail price, it might be able to attain its object.

In 1929, the Stinson Aircraft Corporation had made approximately 65% of its sales of all models of its planes through distributors and dealers, most of whom also operated schools and taxi services. Stinson distributors, typically, were located at flying fields, maintained hangars, offered airplane and engine service, had small salesforces, sold to all classes of purchasers, and derived the major portion of their income from the sale of flying courses and aerial services rather than from the sale of planes. The remaining 35% of the company's sales had been made directly to users in territories not reached by dealers and distributors and to large transport lines.

Distributors were required to contract for a minimum of 20 planes annually, and they deposited approximately \$250 per plane contracted for as evidence of good faith. Approximately

20 distributors had been appointed throughout the United States; each of these distributors had appointed a varying number of dealers. Distributors were granted a discount of 20% off the list price, and the company recommended, but did not require, that they grant the dealer between 10% and 15%, the exact amount depending upon whether or not the distributor had to furnish demonstrations for the dealer's customers. Distributors and dealers were not required to maintain stocks of spare parts for planes or to carry stocks of planes for immediate delivery; each distributor was required, however, to have a Stinson plane available for demonstration. The selling activities of distributors were supervised by means of correspondence, meetings at aircraft shows, and frequent visits by the sales manager; distributors, in turn, supervised the selling methods of dealers.

The company had carried on a small advertising campaign, confined principally to aviation trade journals. Inquiries received in response to this advertising were referred to a distributor if one were operating in that particular territory. If not, the company sent a letter to the inquirer and, if it appeared that he was thinking seriously of purchasing a plane, sent a demonstration plane from the factory or from the nearest representative at its own expense.

This method of distribution had not been entirely satisfactory to the company. In addition to the high cost, there was the objection, in the company's opinion, that distributors performed no important function, since they carried no stocks, were reluctant to pay much attention to dealers, and, since they required cash payments from dealers, assumed no credit risk.

In the opinion of the company, the high cost of this method of distribution was caused by the restricted market; the number of prospective purchasers was limited by the high price and the novel character of air travel. Several other companies manufactured planes which competed directly with those of the Stinson Aircraft Corporation and whose retail price was approximately the same. Competition among the various manufacturers and among retail outlets was keen. Furthermore, prospective purchasers often were widely scattered, and the expense entailed in visiting each one to make a demonstration flight was high, although the exact costs were not known. The president of the Stinson Aircraft Corporation estimated that the ratio between the number of prospective customers who were given demonstration flights and

the number who purchased Stinson planes was considerably more than four to one; moreover, it often was necessary for the company or the distributor to fly a demonstration plane several hundred miles in order to reach a prospective purchaser.

By converting distributors into dealers and selling to all dealers directly from the factory, the Stinson Aircraft Corporation could grant, it believed, a 15% discount to dealers without curtailing their profits; because of the rudimentary nature of the accounts kept by most of its dealers, the company was unable to ascertain their costs accurately. Inasmuch as the company had been allowing its distributors a 20% discount, the adoption of a 15% discount would enable it to make some reduction in the retail price of its planes. Nevertheless, such a reduction would not be large enough, in the company's opinion, to influence consumers.

In order to test its theory that the demand for airplanes could be increased greatly by a 50% price reduction, the company, it appeared, would have to effect a program of drastic price revisions regardless of the existing costs of distribution. If Stinson planes were the first to be reduced in price, the total benefit of reaching a new group of purchasers should accrue to the company, at least for a temporary period. If this happened, the cost of selling, the company believed, would be reduced to a point where both its dealers and itself could make a profit on sales at the new price.

Early in 1930, the executives of the Stinson Aircraft Corporation decided to sell directly to dealers, granting them a 15% discount, and to announce drastic price reductions on all models of Stinson planes; the price reductions were to be especially large on those planes powered by Lycoming motors, since other engine manufacturers were unwilling to grant such low prices as had been obtained from the Lycoming Manufacturing Company. That company had stated, however, that as soon as productive capacity permitted, it would sell to other manufacturers of planes on the same basis as it sold to the Stinson Aircraft Corporation. The revised price schedule of the Stinson Aircraft Corporation, giving prices for new models as well as for the regular line, as compared with the former prices, was as follows:

Models	1929	1930
Stinson Junior 4-place		
210 horsepower Lycoming motor.....		\$ 5,775
165 horsepower Wright motor.....	\$ 8,850	
225 horsepower Wright motor.....	10,500	8,495
300 horsepower Wright motor.....		10,495
Stinson Detroiter 6-place		
300 horsepower Wright motor.....	13,500	10,995
Stinson Wasp 8-place		
425 horsepower Wasp motor.....	19,500	15,995
Stinson Airliner Tri-motor		
3 210 horsepower Lycoming motors.....		23,000

An intensive advertising campaign, centered principally in the *Saturday Evening Post*, was used in announcing the new prices; the advertisements also stressed the ease of flying and the desirability of owning a Stinson plane. Because of its low price and its presumably wider market, the Stinson Junior powered with the Lycoming engine was featured as the leader in the company's line. The Stinson Aircraft Corporation placed with the Lycoming Manufacturing Company an order for 500 engines to be delivered by May 1, 1930, and at the same time ordered \$1,500,000 of parts and materials for airplanes.

In addition to the extensive advertising campaign, the Stinson Aircraft Corporation provided its dealers with sales manuals, descriptions of selling talks, and other helps designed to increase the effectiveness of the dealer's salesforce. It urged dealers to talk to prospective purchasers in non-technical language, not to mention the "stunting" capacities of the planes, not to stress other performance characteristics of the planes, and to emphasize the comfort, safety, and ease of operating Stinson planes and their desirability as a medium of personal transportation. The company also employed six high-grade salesmen, whose duties were primarily to advise dealers in the proper methods of approaching and talking to prospective purchasers and to aid them in closing sales. The salesmen also were to appoint new dealers in territories where it appeared to be advisable and to make sales directly to individuals who were located far from a dealer or in a territory covered by a dealer who had failed to show initiative in looking up prospective purchasers and in making sales. Dealers were not granted a commission on sales made to these purchasers.

Within a month after the announcement of the new price schedule the cash on delivery orders received through Stinson dealers from individual purchasers amounted to more than 50%

of the company's total sales in 1929, and the company expected that the total sales in the first few months of 1930 would exceed 300 planes. Such a production schedule assured the company a profit on the sale of each plane. Although the president of the company believed that a market for 1,000 Stinson Junior planes at the new price existed during 1930, the company was producing only upon actual orders received. In the first few months of 1930 the number of Stinson dealers was increased by more than 100%.

The qualifications exacted of dealers were highly flexible, and depended more upon the personality of the men than on their financial and physical assets. Each dealer was required to deposit \$1,000 toward payment on orders with the company, regardless of the size of the order, so that the company would be protected in case he refused the shipment; if he did refuse, he forfeited the deposit.

The Stinson Aircraft Corporation decided not to attempt to enlist the services of dealers in Cord and Auburn automobiles. If such automobile dealers, which were independent companies not financially affiliated with the Auburn Automobile Company, desired to enter the aviation field by organizing an airplane sales branch, and if they applied to the Stinson Aircraft Corporation for franchises, dealerships would be granted as they were to other companies; but the Stinson Aircraft Corporation declined to take the initiative in encouraging such action, and decided not even to pay such dealers a commission on planes sold to persons whose names the dealers submitted.

The company's distributors had protested at being made dealers and given only a 15% discount, but after a period of trial they had withdrawn such protests, finding that they were able to sell more planes than formerly, to turn their capital more rapidly, and thus to make greater profits. The sales manager of the Stinson Aircraft Corporation cited the instance of one of the company's outlets, which, functioning as a distributor in an exclusive territory had sold only three Stinson planes in 1929, but, functioning as a dealer in a nonexclusive territory, had sold 23 Stinson planes in the first month after the price reductions were announced.

COMMENTARY: The basic facts in the Stinson Aircraft Corporation's immediate situation were that in the first 11 months of 1929, as

contrasted with the year 1928, the company's plant had been expanded about 10 times, sales in dollars had increased 2.5 times, sales in units had increased 1.5 times, and net profits had decreased 10.6 times. Since December ordinarily is a month of inactivity in aircraft sales, the company probably experienced little betterment in these ratios during that month. Going into 1930, therefore, the company faced the problem of overcoming the unfavorable trends in its operating results. Perhaps the company had fully discounted the possible adverse effects of slackening business activity when it estimated that in 1930 there would be a demand for 1,000 Stinson airplanes. In any event, the company's attention was given chiefly to reaching a fundamentally sound price policy, rather than one designed merely to meet temporary conditions. The discussion which follows is similarly restricted to non-cyclical considerations.

In making its diagnosis as a preliminary to policy formation the Stinson Aircraft Corporation followed a logical procedure, classifying the various types of demand for its products, analyzing the reasons which probably governed each type of potential buyer in deciding whether or not to purchase an airplane, surveying the net effectiveness of its distribution and sales promotion methods, and, apparently most important in the company's opinion, forecasting the results of price reduction on sales volume, costs, and net profits. Despite the logical sequence of these steps, however, the analysis of some of them was not carried far enough to provide valid conclusions.

The company properly placed much weight on the importance of operating profitably, but it might well have given more attention to the question of how long a period to use in planning for substantial profits. Even in well established industries, a calendar year often is an unsatisfactorily short period for the reckoning of profits as a guide to executive decisions.² And in the aircraft industry, a very young industry so far as selling to civilians was concerned, it was doubtful whether policies could be based safely on profit showings for even longer periods.

The production capacity of the Stinson Aircraft Corporation was far in excess of its sales volume; that disproportion, however, was not a legitimate basis for sales planning. Had the company gone to the length of reducing its prices by half, as it first contemplated, it almost certainly would have been making a premature attempt to increase sales. The fact that sales in units had increased only 1.5 times while sales in dollars had increased 2.5 times, indicated that demand for the higher priced planes had been growing. The company's final decision was to reduce its prices substantially, to engage in additional advertising and sales promotional activities, and to revise its distribution methods by eliminating distributorships and selling directly to retail dealers.

² Cf. case and commentary on the Tottenham Motor Company, 5 H.B.R. 238.

As the basis for its price reductions the company reasoned that lower prices would lead to an increased volume of sales, lower production costs per unit, and greater net profits. The validity of the price reductions, therefore, was made to depend on whether demand would be stimulated sufficiently to result in the sale of enough more units to offset the loss in gross margin on each unit. The preliminary results reported in the case tended to indicate that this objective would be obtained. It is unreasonable, however, to infer long time trends solely from the immediate results or to attribute those results wholly to the price reductions. The additional advertising and sales efforts also had their part in the new program; since those efforts were directed at the important objective of removing from the minds of buyers the belief that airplanes were difficult and inconvenient to use, their part in the program was probably of much importance.

Although the company did not rely exclusively on price reductions to stimulate demand for its products, it attached primary importance to those reductions. This attitude carried with it the risk that undesirable emphasis would be put on price as a device for sales promotion. There was little reason to believe that consumer demand for airplanes was even moderately elastic.³ Many a person, for instance, would not undertake to fly an airplane even if one were given to him. Among the positive causes of refusal to buy an airplane, fear of accident should have been recognized as of leading importance. How to appraise the risks of flight in the light of observed facts, how to reduce those risks, and how to make to prospective customers an impartial statement concerning them, were problems more urgent than mere price reduction, because they had to be solved before substantial expansion of the market for airplanes could take place.⁴ Coupled with these problems were the questions of usability and convenience of airplane travel, to which the company already was giving attention.

The foregoing reasoning applies chiefly to the market among individual consumers, and to some extent also to the market among business firms. Transport lines, fixed-base operators, and other users of airplanes for income purposes, could have been expected to react on rational grounds to a sharp price reduction, and to divert their purchases to Stinson planes. Such diversion, however, would be short-lived at best, because other airplane manufacturers doubtless would make similar price reductions. It was highly uncertain, moreover, whether these reductions would result in a sufficient lowering of transport line rates to stimulate greatly increased patronage and bring about larger sales of airplanes to the transport lines.

³ See Introductory Survey, pp. 20-22.

⁴ For a case and commentary on the contrast between elasticity of demand and expansibility of market, see California Fruit Growers' Exchange, 3 H.B.R. 123.

Another problem to which study should have been given was whether the company's products were in all respects suitable for the markets which were being sought. Perhaps modification of the products, or possibly the addition of other models, was called for. The company was making such minor adaptations as the adding of accessories for the convenience of passengers, and it can be inferred that the company also was considering more drastic changes to enhance the salability of its line.

It has been the usual course of events for new products to be offered, during the stages of preliminary exploitation, at prices much above the levels to which they later fall as competition grows and production methods improve. The aviation industry, consequently, could look forward to a falling price level, and the decision of the Stinson Aircraft Corporation was similar to earlier decisions in the automobile, electrical appliance, radio, and many other types of business. No one company in a competitive industry, however, can long divert orders from its competitors by means of price reductions; price reductions, once made, tend to become common throughout an industry, and if the reductions are too great, they precipitate price wars, with no permanent advantage to any of the companies concerned.⁵

It is difficult, from the data in the case, to understand why the company regarded its former prices as being necessary largely because of high marketing expense. In the example of the Stinson Junior, cited at p. 277, the company properly took into account the entire costs of getting the plane into the consumer's hands; that is, the analysis was in terms of the consumer's dollar. Only 20% went to distributors and dealers together for their part in the marketing of the plane. This margin was too small, rather than too high. For production costs of this plane, the company received 45.7% of the price to the consumer, and for other expenses and net profit it received 34.3% of the retail price. These figures do not correspond closely to the average results for the company's total operations, which may be derived from the company's income account on p. 273. To obtain these averages, it is necessary to raise the reported net sales figure to the corresponding value of the same sales at retail list,⁶ and then to compute the proportions of the resultant figure which were attributable to the company's various functions.

The results thus obtained are: company's production costs in 1929 were 60% of retail list; selling, administrative, and general expenses, and

⁵ See cases of Fleet Aircraft, Inc. (C), p. 265, and Vaiden Chemical Company, 9 H.B.R. 51.

⁶ Thirty-five per cent of the company's net sales were made directly to users, and were therefore already at retail list. The remaining 65% represents 80% of retail list. The total list value of the company's net sales of \$1,361,839, for the first 11 months of 1929, was \$1,583,138.

profit, were 22%; margins for distribution agencies were 18%. This analysis indicates that there was little opportunity to reduce prices on the basis of possible reductions in marketing costs. On the contrary, it seems that larger discounts to the company's distribution agencies,⁷ and perhaps larger appropriations for the company's own salesforce and for its sales promotion activities, were needed.

Even if permanently larger sales resulted from the company's price reductions, the justification for those reductions must be sought in the opportunities for cutting production costs. Engine costs were the largest single item in production, and by arrangements with the Lycoming Manufacturing Company lower engine prices already were being secured. Since other engine manufacturers had refused to give quantity discounts similar to those granted on Lycoming motors, the Stinson Aircraft Corporation enjoyed a differential advantage through its affiliation with the Cord Corporation; this advantage would continue until other manufacturers of engines followed suit, or until the Lycoming Manufacturing Company was prepared to market its motors to outsiders in the same quantities as those bought by the Stinson Aircraft Corporation.

Materials were the next largest item in the cost of manufacturing Stinson airplanes. Since other units controlled by the Cord Corporation did not buy similar materials, there was no opportunity for securing larger discounts on materials through consolidated purchasing; the quantity purchase of materials, rather than purchase on a hand-to-mouth basis, however, offered definite possibilities for economies. As to labor and overhead costs in production, there was little apparent opportunity for savings.

Of the possible production economies mentioned above, it must be said that they were in large part obtainable even without an increase in sales volume, and, to the extent that they could be put into effect, the company could reduce its prices without cutting into its net profits. The amount charged as factory depreciation was so low, however, as to make it appear that a better policy might have been to increase that item rather than to reduce prices.

On the whole, the company's price policy was formulated on an incomplete analysis; it prematurely assumed that demand for airplanes was elastic; it overlooked the need of expenditures aimed at expanding the market; it failed to allow adequately for the margins required by dealers; and it anticipated important reductions in marketing expenses when such reductions did not appear to be realizable.

The question of selling directly to retail dealers rather than through wholesalers is discussed in commentaries on several other cases⁸ and

⁷ See commentary on case of the Curtiss-Wright Sales Corporation, pp. 107-113.

⁸ See cases of the Holworthy Aviation Company, p. 71; American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (B), p. 152; and Great Lakes Aircraft Corporation (A), p. 162.

calls for no special treatment at this point. The problem of arranging for time payments on its airplanes still faced the company. In connection with the control of the Stinson Aircraft Corporation by the Cord Company, and the resultant community of interest with the Auburn Automobile Company, it is noteworthy that there had been no attempt to enlist the services of Cord and Auburn distributing agencies for the sale of Stinson airplanes,⁹ although those agencies probably possessed valuable lists of possible purchasers of airplanes.

August, 1930

C. I. G.

⁹ See cases of the Mulliner Motor Company, p. 76; Fokker Aircraft Corporation of America (A), p. 80; Curtiss-Wright Sales Corporation, p. 85; American Aeronautical Corporation, p. 114; Fleet Aircraft, Inc. (A), p. 127; Hayden Aviation Company, p. 132; and Parker-Weston Company (A), p. 141.

VI. SALES ORGANIZATION AND MANAGEMENT

29. FOKKER AIRCRAFT CORPORATION OF AMERICA (B)¹

MANUFACTURER—AIRPLANES

SALES ORGANIZATION—*Segregation of Salesforce.* A company manufacturing airplanes had, since its inception, maintained separate salesforces for the three markets to which the products appealed: the United States Army and Navy; regularly scheduled air transport lines; and commercial and private users. Since each of the three markets was highly specialized, concentration on one group of customers was thought to increase a salesman's effectiveness.

(1930)

Shortly after the formation of the Fokker Aircraft Corporation of America in 1923, executives had decided to maintain separate salesforces to sell Fokker planes to the three markets to which the products appealed. On reviewing the company's policy, in May, 1930, the executives decided that its experience had demonstrated the advantages of such a sales organization.

Anthony H. G. Fokker, for whom the Fokker Aircraft Corporation was named, was one of the foremost designers of airplanes in the world. After establishing aircraft factories in Europe and building up an excellent reputation for Fokker planes, he visited the United States in 1920, and interested a number of American business men in forming the Fokker Aircraft Corporation of America. Mr. Fokker remained in the United States as chief engineer of the company. By 1930, Fokker planes had established a reputation in the United States for dependability and safety, and the company had become one of the leaders in the industry. Factories were in operation at Wheeling, West Virginia, Hasbrouck Heights, New Jersey, and Passaic, New Jersey. Sales in 1929 exceeded \$4,000,000. Early in 1929, General Motors Corporation had purchased a 40% stock interest in the company.

The line of planes manufactured by the Fokker Aircraft Corporation included a wide variety of cabin monoplanes, list prices of which varied between \$11,000 and \$110,000, after price

¹ See also Fokker Aircraft Corporation of America (A), p. 80.

reductions announced in April, 1930. The company produced the following eight models and two additional models, which were only slight variations from two of these.

Standard Universal, a 5-place cabin monoplane powered with a Wright Whirlwind 300 horsepower motor and having a high speed of 130 miles an hour and a cruising speed of 105 miles an hour. List price, \$11,000.

Super-Universal, a 7-place cabin monoplane, powered with a Pratt & Whitney 425 horsepower Wasp engine and having a high speed of 138 miles an hour and a cruising speed of 118 miles an hour. List price, \$17,500.

F-14A Mail Plane, a combination mail and passenger plane with accommodations for 8 passengers and a pilot, or an equivalent weight in mail, powered with a Pratt & Whitney 525 horsepower Hornet or a Wright 525 horsepower Cyclone engine and having a high speed of 140 miles an hour and a cruising speed of 115 miles an hour. List price, \$22,500.

F-11A Flying Boat, an 8-place cabin monoplane, powered with a Wright 525 horsepower Cyclone or a Pratt & Whitney 525 horsepower Hornet motor and capable of a high speed of 120 miles an hour and a cruising speed of 100 miles an hour. List price, \$32,500.

F-11A Amphibian, an 8-place cabin monoplane, powered with a Wright 525 horsepower Cyclone or a Pratt & Whitney 525 horsepower Hornet motor and capable of a high speed of 112 miles an hour and a cruising speed of 95 miles an hour. List price, \$33,775.

F-9 Trimotor, a 10-place cabin monoplane, powered with 3 Wright Whirlwind 300 horsepower engines and capable of a high speed of 127 miles an hour and a cruising speed of 103 miles an hour. List price, \$42,000.

F-10A Trimotor, a 14-place cabin monoplane, powered with 3 Pratt & Whitney 425 horsepower Wasp engines, with a high speed of 140 miles an hour and a cruising speed of 118 miles an hour. List price, \$54,500.

F-32, a 32-place cabin monoplane, powered with 4 Pratt & Whitney 525 horsepower Hornet engines, with a high speed of 140 miles an hour and a cruising speed of 120 miles an hour. List price, \$110,000.

Because of the large capacity and the consequent high prices of Fokker planes, the company's market was confined principally to three types of buyers: the United States Army and Navy; regularly scheduled air transport lines carrying mail, passengers, express, or any combination of the three; and those buyers which

the company designated as commercial users and which included fixed-base operators conducting aerial taxi services, and companies operating planes for the transportation of executives, salesmen, and merchandise, or for sales promotion. Private individuals using planes for pleasure were an important market for some types of Fokker planes, but their purchases constituted a small part of total sales. During 1929, 78% of sales had been made to transport lines, commercial users, and private individuals, and the remaining 22%, to the United States Army and Navy. The company made a majority of its planes to order, but it carried a few in stock at the factories.

In 1930, the company employed seven men engaged primarily in selling activities. The vice president in charge of sales and two salesmen, who were former Army officers, were located in Washington to make sales to the United States Army and Navy. Three salesmen, with headquarters at the company's factory branches in New York, Chicago, and Tulsa, Oklahoma, respectively, sold planes to fixed-base operators, companies not engaged in the aviation industry, and private individuals. One salesman from New York sold directly to transport lines throughout the United States. In addition to its own salesforce, the company had appointed, through intercorporate relationships, the Aero Corporation of California as a distributor for California, Arizona, New Mexico, and western Texas, granting that corporation a discount of 15% from the list prices. The Aero Corporation of California sold planes to fixed-base operators, companies not engaged in the aviation industry, and private individuals.

At the time of the affiliation with General Motors Corporation, all dealers for that company were instructed to be on the alert for all types of prospective purchasers of airplanes. The dealers' automobile salesmen attempted to interest prospective purchasers in airplanes and even to complete sales; a demonstration plane was sent from the headquarters of the nearest Fokker salesman if it became apparent that the prospective purchaser was likely to buy a plane. On completed sales automobile dealers were granted a commission of 5%. This plan had been successful, in the company's opinion, because of the fact that a number of automobile salesmen had had flying experience and combined enthusiasm for aviation with selling ability. Names of additional prospective purchasers of Fokker planes were obtained by the

Fokker Aircraft Corporation from customers and personal friends of executives and salesmen. The company granted a commission of 5% to the person turning in the name of an individual who later made a purchase. Names of a few additional prospective purchasers had been obtained from responses to the company's trade journal and general magazine advertising.

It was the policy of the Fokker Aircraft Corporation to make demonstration flights only for those customers who seemed likely to purchase Fokker planes. In the company's opinion, this practice did not adversely affect sales volume, since prospective purchasers of planes realized that, without this restriction, the cost of demonstrations would be prohibitive.

It had been the experience of the Fokker Aircraft Corporation that a salesforce segregated according to types of customer was successful. Each of the company's three markets was highly specialized, and there was little similarity in their needs or in the methods most suitable for selling to them. A salesman had to be thoroughly familiar with the particular field in which he was selling in order to appeal effectively to prospective purchasers in that field. The company had found it desirable to employ as salesmen men of high character and excellent business ability, capable of making reliable and valuable recommendations to customers and, furthermore, men who were pilots.

The specialized knowledge required of salesmen did not include, however, a wide knowledge of engineering; such knowledge was supplied by the engineering department. That department had designed various types of planes which were adapted, in general, to the needs of the various groups of customers; the salesmen had supplied the department with the necessary general information, and many members of the department themselves were experienced pilots. From the line of planes offered by the company, the salesman recommended that model best suited to the particular need of the customer and the engineering department then made minor changes if they were desired.

In making sales to the United States Army and Navy, the Fokker Aircraft Corporation had found it desirable to employ former officers; such men were familiar with the methods employed by the government in placing orders, had a wide acquaintanceship in both branches of the aviation service, and were familiar with the requirements to be met by military and naval planes.

For making sales to regularly scheduled transport lines, only one salesman was employed, since the market was restricted to the few holding corporations which dominated the air transport field, or to their subsidiaries. This salesman was thoroughly familiar with the requirements of planes for this service and was competent to make recommendations to transport line operators.

The three salesmen who sold to fixed-base operators, business companies, and private individuals also needed specialized knowledge. Fixed-base operators buying Fokker planes usually planned to use them for aerial taxi services; they were, therefore, interested in operating costs, carrying capacity, and similar considerations. Business firms which would use planes for the transportation of executives, salesmen, or merchandise, or for advertising and sales promotion were interested in the airplanes' value as reflected in such factors as costs and time saving. As a result, the salesmen must be prepared to submit detailed reports as to the value of the uses to which the planes might be put in the customers' businesses. The individual purchaser of a Fokker plane, contemplating using it for pleasure, was interested more in comfort, convenience, and safety than in such factors as costs; a large part of the salesman's task was to recommend that type of plane which would best fit in with the particular requirements of the customer.

In view of the fundamental differences in the various classes of customers to which the Fokker Aircraft Corporation sold its products, executives of the company believed that they had been wise in instituting a policy of salesforce segregation. The experience of the General Motors Corporation in selling trucks had tended to confirm this conclusion. The company had first attempted to sell G.M.C. trucks through its established passenger automobile dealers, but it had found those dealers unsatisfactory because of their restricted knowledge of the special requirements of truck purchasers. After a trial period of five years, the company had discontinued this policy and employed specialized truck salesmen operating from factory branches.

COMMENTARY: It was a sound policy for the Fokker Aircraft Corporation of America to segregate its salesforce for the purpose of selling to different markets. This was particularly true of the markets offered by the United States Government and the air transport lines. In sales management the principle of salesforce segregation is well

established where different markets present different technical problems, different buying habits, and different buying motives. The market offered by the United States Government clearly differed in these respects from the market offered by air transport lines.

The Fokker Aircraft Corporation of America had three salesmen operating from its factory branches, selling planes to fixed-base operators, business firms, and private individuals. In the existing stage of development of the company's business, this arrangement perhaps was adequate. With expansion of the company's sales, however, particularly its sales to business firms and private individuals, it was likely that a more elaborate sales organization would prove necessary. In the first place, it is reasonable to suppose that any marked expansion of sales to business firms and private individuals would require the establishment of a dealer organization in addition to the company's factory branches. On this point the experience of the American Locomotive Company in trying to market the Alco car during the early days of the automobile industry is possibly significant.²

Any widespread and indefinite market, such as that consisting of private individuals who might be potential purchasers of airplanes, requires a large number of sales contact points. To cultivate this market, therefore, the Fokker Aircraft Corporation of America might find it necessary not only to establish a substantial number of dealers but also to develop a separate section of its sales organization for the purpose of maintaining contacts with these dealers. Inasmuch as fixed-base operators might in many instances be used as dealers, at least in the initial stages of the company's marketing program, there would at the outset be no reason why the same sales organization could not cover both fixed-base operators and dealers. Conceivably, however, as the function of selling airplanes to business firms and private individuals became more clearly differentiated from the functions of fixed-base operators, some further segregation of salesforce might appear at this point.

Furthermore, it is possible that the ultimate development of the industry might make desirable a segregation of salesforce on the part of the dealers themselves for the purpose of effectively differentiating between the market consisting of business firms and that consisting of private individuals. Such a development would parallel the experience of automobile distributors and dealers in handling automobile trucks and passenger cars.³

July, 1930

M. P. M.

² See case of the American Locomotive Company, 3 H.B.R. 149.

³ See case of the Rice Motor Company, 3 H.B.R. 153.

30. C. DALLAS, INCORPORATED

DISTRIBUTOR—AIRPLANES

SALESFORCE MANAGEMENT—*Training Course for Salesmen.* A fixed-base operating company holding the distributor's franchise for the airplanes of four manufacturers discovered a shortage, not only in its own organization but throughout the aviation industry, in the type of salesman whom it considered qualified to sell airplanes at retail. Believing that it was not necessary for a salesman to be a pilot, but that the important qualification of a salesman was the ability to meet wealthy individuals on terms of equality and to present a sales talk in terms intelligible to such individuals, the company decided to institute a training course for prospective salesmen in the proper methods of selling airplanes, without including actual flight training.

(1930)

C. Dallas, Incorporated, was a fixed-base operating company located at the municipal airport in Buffalo, New York. Early in 1930 the company had encountered a shortage in the type of salesman whom it considered qualified to sell airplanes at retail. Upon investigation, the executives of C. Dallas, Incorporated, discovered that there was a serious shortage of this type of salesman throughout the aviation industry. Consequently, the company decided to institute a training course intended primarily to train prospective salesmen in the proper methods of selling airplanes; actual flight training was not included in the curriculum. Executives of the company stated that such a training course was an innovation in the industry, but they were convinced that it would meet an important need.

The Buffalo municipal airport was situated approximately eight miles from the downtown district of the city, upon the main highway connecting Buffalo with Rochester and Syracuse. It was several miles from the nearest wealthy residential district. Transportation facilities between the airport and the city were furnished by an automobile bus line, which made four trips each way daily, and by taxicabs. Taxicab companies charged a standard rate of \$3 for transportation between the downtown district of Buffalo and the airport; the time required for taxicab

transportation varied between 25 and 35 minutes, the exact time depending on traffic conditions. The airport and all buildings located thereon were owned outright by the city of Buffalo; users of the airport facilities rented their hangars from the city at 50 cents per square foot per year. In addition to C. Dallas, Incorporated, several other fixed-base operators carried on aerial operations at the airport.

The hangar occupied by C. Dallas, Incorporated, was of brick and steel sash construction and had been erected at a cost of approximately \$20,000. It was 85 feet long by 80 feet wide; of the total area of 6,800 square feet, 5,200 square feet were devoted to the hangar proper for the storage and repair of planes and 1,600 square feet were utilized as space for a machine shop, an office, and the storage of spare parts and accessories.

The operations carried on by C. Dallas, Incorporated, included the sale of airplanes and airplane accessories, aerial taxi services, a flying school and a mechanics' school, and the servicing and storage of planes and engines. The company's flying school courses were designed to qualify students for the Private, Limited Commercial, and Transport Pilot's licenses of the United States Department of Commerce; the charges for the courses were \$545, \$1,250, and \$4,050 respectively. C. Dallas, Incorporated, held the distributor's franchise for the sale of Stinson, Waco, Ryan, and Mono airplanes in an exclusive territory including all of New York State west of Watertown, Rome, and Binghamton and in addition the northern tier of counties in Pennsylvania. Within this territory, the company had appointed 12 dealers. It also sold planes at retail within a radius of approximately 50 miles of Buffalo.

The Stinson planes sold by C. Dallas, Incorporated, included a 4-place cabin monoplane, priced from \$5,775 to \$10,495, the amount depending upon the engine; a 6-place cabin monoplane at \$10,995; and an 8-place cabin monoplane at \$15,995. The Waco line of planes consisted of 6 models of 3-place open-cockpit biplanes priced from \$2,145 to \$10,000. Mono airplanes included the Mono-coupe, a 2-place cabin monoplane at \$2,835; the Mono-prep, a 2-place cabin training plane at the same price; the Mono-sport, a 2-place cabin monoplane priced at \$6,350; and the Mono-coach, a 4-place cabin monoplane at \$7,950. Ryan planes included the Ryan B-5, a 6-place cabin monoplane priced at \$13,250;

the Ryan B-7, a 6-place cabin monoplane at \$17,500; and the Ryan Foursome, a 4-place cabin monoplane at \$10,900.

C. Dallas, Incorporated, received a discount of approximately 25% on the retail list prices from the manufacturers it represented, and it granted its dealers a discount of 20%. The company regarded the sale of new and used planes as its major activity, and it received the larger portion of its profits from this source. On sales of planes which it made to individual purchasers, the company figured that its net profit was approximately 12%; the expenses of making such sales originated chiefly from the maintenance of a retail salesforce and from demonstration flights. On the sale of planes to dealers, the company estimated that it also made a profit, since the planes were delivered direct from the factory to the dealers and since company executives had found it necessary to make only occasional visits to dealers to supervise operations and to give advice. In 1929, C. Dallas, Incorporated, had sold a total of 84 planes to users and dealers; approximately 50% of these sales had been made at retail by the company's salesforce. The company's retail sales had been made to individual purchasers of planes who used them for pleasure flying or to business companies for use in advertising and sales promotion or for the transportation of executives and salesmen.

The executives of C. Dallas, Incorporated, were convinced that the sale of planes to individual purchasers for pleasure flying was restricted largely by the cost of owning and operating a plane; the company, therefore, restricted its selling efforts to those persons who, apparently, could afford to own one. In turn, the sale of planes to this group of consumers was judged to be restricted by two major factors, fear of accident and ignorance of the technical aspects of planes. The company believed that the inability of many dealers and salesmen to sell planes to wealthy individuals could be ascribed to the fact that few pilots or salesmen recognized the importance of meeting these factors. The average pilot, in the company's opinion, desired to present himself as a hero to his friends and to the general public; in order to do this, he must emphasize the difficulty and danger of flying an airplane. Moreover, the company believed that a majority of manufacturers and plane salesmen in their booklets and sales talk expounded the merits of a particular plane in such technical terms as "wing loading," "rate of climb," and "useful load," which meant nothing to

the average individual and merely led him to believe that flying was too technical an operation for him to undertake.

In organizing the company's salesforce of six men, the executives of C. Dallas, Incorporated, had attempted to eliminate such factors. It was not necessary that the salesman be a pilot; the important qualifications were the possession of a personality suited to meeting wealthy individuals on terms of equality and the ability to present a sales talk in terms intelligible to such individuals. Each salesman was granted a drawing account to cover travelling expenses and a commission of approximately 8% of the list price of the plane. The company had found that such a scale of compensation was high enough to attract salesmen of the necessary caliber.

C. Dallas, Incorporated, obtained the names of prospective purchasers of planes from the responses received by the plane manufacturers in reply to their trade journal and general periodical advertising, from flying students and their friends and acquaintances, from visitors to the airport, from lists of the executives of large local manufacturers, and from lists of wealthy residents of Buffalo and vicinity. The company advertised its flying school by means of daily small-space insertions in a local newspaper.

All leads from manufacturers were followed up, although the company had found that the major portion of the names sent in by manufacturers were those of children. In a typical instance, the salesman called upon the prospective purchaser and first talked to him of the general features of aviation, stressing the use of the plane as an aid in business or as a vehicle of pleasure flying, according to the apparent nature of his interest. The prospective customer, if he evinced a valid interest, was next taken to the airport and given a few short flights in several types of planes. No attempt actually to sell a plane was made until this point had been reached. If the prospect was still interested in the purchase of a plane, the salesman then aided him in selecting one adapted to his particular use. After the purchase, the individual was given a free flying course equivalent to that qualifying a pilot for the Private Pilot's license of the United States Department of Commerce.

Under usual conditions, the salesmen of C. Dallas, Incorporated, confined their selling efforts to the territory in the vicinity of

Buffalo. The company reserved the right, however, to compete with its dealers if it became apparent that they were not exerting the proper effort to sell planes.

During 1930, the company expected to increase the number of its salesmen and to carry on a program of sales promotion on a larger scale. Its first effort to obtain salesmen of the proper personal qualifications who already were familiar with aviation was not successful. The company decided, therefore, to institute a salesmen's training course, in order that men with the proper personal qualifications might obtain the necessary familiarity with aviation to sell planes successfully.

In making this decision, the executives of C. Dallas, Incorporated, had been influenced by other factors than their own immediate need of salesmen. In the first place, they believed that early in 1930 both the operating and production phases of aviation were overcrowded. The number of pilots holding Limited Commercial licenses, qualifying them to engage in the restricted commercial operation of aircraft, was thought greatly to exceed the demand. The number of transport pilots was less than the demand for them, but the company anticipated that this situation would reverse itself in the future as the difficulty of piloting planes became less. The production facilities of the aviation industry had been greatly overexpanded in 1929, and the tendency in 1930 was to cut down production and, consequently, to lessen the demand for production personnel.

On the other hand, from its own experience, the company was convinced that there was a dearth of men equipped both with the personality and with the general knowledge necessary to sell airplanes successfully; a majority of the applications for the new positions offered by the company had come either from men familiar with aviation but not personally qualified as salesmen, or from men with the personal qualifications but without a general knowledge of airplanes and their uses.

In order to confirm its analysis of the situation, C. Dallas, Incorporated, had written to each of the plane manufacturers it represented and each had replied that there was a definite shortage of qualified plane salesmen; each of the manufacturers had indicated, moreover, that, if the company instituted a training course designed to train salesmen in plane merchandising, they would accept all available graduates as company salesmen. In

view of the apparently favorable conditions for establishing an airplane salesmen's school, the company decided to make arrangements for an immediate opening.

The first course instituted by the company was limited to a class of 30 candidates who were required to meet the proper personal qualifications, to have had previous successful merchandising experience, and to possess a high-school education or better. The training course lasted for four months. During each week, three evenings were devoted to classroom work, and one two-hour day period was devoted to inspection of planes and engines. In addition, four half-hour demonstration instruction flights were included in the course.

The classroom work consisted of lectures, discussions, and examinations, prepared by the executives of the company, on the use of airplanes by business companies for advertising, sales promotion, and the transportation of executives and salesmen; the use of planes as pleasure vehicles; the proper presentation of the arguments for privately owned planes; the various resistances met with and the proper methods of overcoming them; the principal selling points of the planes sold by the company; the uses for which each of the planes was best adapted; the qualities of the plane in which the prospective purchaser usually was interested; and important technical matters about which he was likely to inquire. A certain amount of general information on airports also was included. The day periods were devoted to a detailed inspection of planes in order to familiarize the student with their appearance and nomenclature. During the flight periods, the student was instructed in the proper method of demonstrating the plane and bringing out its points of superiority. The executives of C. Dallas, Incorporated, believed that it was unnecessary for a plane salesman to be a pilot; during the demonstration of a plane, they preferred that the salesman allow someone else to operate the plane, since the salesman would then be more free to talk with the prospective customer.

The charge for the course was \$300 payable upon enrollment. This sum was considered sufficient to cover the expenses of instruction and probably to yield a small net profit. The company's primary purpose in making the charge for instruction, however, was to stimulate the interest of students enrolling in the course. The company had investigated similar training schools

conducted by various automobile dealers and manufacturers and had found that the percentage of students completing courses satisfactorily, both from an attendance standpoint and from that of scholastic proficiency, was far greater in cases where a sizable fee was required.

In one particular case, the manufacturers' first course, a free one, started with an enrollment of 150 men, of whom 37 completed the course and qualified. A fee of \$50 was required for a subsequent course, and of an enrollment of 50 persons, 47 qualified.

As a result of these observations, C. Dallas, Incorporated, had come to the conclusion that the requirement of an enrollment fee not only produced a much higher class of applicants, but instilled in the student a greater desire to reap the full benefits of the money expended.

Although graduates were free to accept any position they desired, C. Dallas, Incorporated, expected that the company itself, its increasing number of dealers, and the airplane manufacturers it represented, would employ all the graduates of the salesmen's school. If a student salesman desired to learn to fly, an additional charge would be made for such instruction.

COMMENTARY: This case records an instance of an aggressive attack on the retail selling problems of the airplane industry; in early 1930 at least, it appeared to be the exception rather than the rule for an airplane dealer to recognize fully the importance of the retail selling problem.

Recognition of the problem in this case presumably was due to the fact that this company, contrary to the policy of most airplane dealers at that time, regarded the selling of the planes as its major activity. It is to be noted also that the company followed the practice of giving purchasers of planes a free flying course equivalent to that qualifying a pilot for a private pilot's license of the United States Department of Commerce.

The company's conclusion was entirely sound that trained salesmen rather than pilots were needed to sell planes. Such trained salesmen for the most part did not exist in 1929; and no doubt, therefore, in establishing a school for salesmen, C. Dallas, Incorporated, was meeting a real need of the industry. In this way, C. Dallas, Incorporated, had an opportunity to obtain for itself and its dealers the services of the best men registering in its school for salesmen. Also, presumably, the company could count on some incidental revenue from this source. On the other hand, such revenue probably would not be large, nor would

the need for such a school continue indefinitely. So long as C. Dallas, Incorporated, operated this school primarily as a means of training salesmen for its own organization and for affiliated dealers and manufacturers, there was little danger that this activity would detract from the company's main objective of selling planes. It is doubtful, however, whether it would have been a sound policy to develop this school primarily as a means of producing revenue from training salesmen for the industry at large.

The plan of charging fees in a school designed primarily to train salesmen for a particular company and affiliated enterprises is rather unusual; though an experiment with this plan was justified on the basis of the experience cited from the automotive industry.

June, 1930

M. P. M.

VII. ADVERTISING AND SALES PROMOTION

31. STINSON AIRCRAFT CORPORATION (D)¹

MANUFACTURER—AIRPLANES

ADVERTISING—*Selection of Appeals.* An airplane manufacturer, which had confined its advertising to infrequent insertions in aviation trade journals, planned to carry on an extensive advertising campaign in general magazines to promote the sale of planes to the general public for personal use. In planning its copy for this advertising, the company decided to describe various reasons for owning a personal plane, to emphasize the ease of flying the company's plane, and to word in easily understandable terms such technical data as were included.

(1930)

Prior to 1930, the Stinson Aircraft Corporation had confined its advertising to infrequent insertions in aviation trade journals. Early in that year, however, the company had decided to carry on an extensive advertising campaign in general magazines to promote the sale of planes to the general public for personal use. Following this decision, the company was faced with the problem of determining the proper copy appeal to use in the general magazine advertising.

The line of planes made by the Stinson Aircraft Corporation included four types of cabin monoplanes, ranging from 4-place single-motored planes to 12-place tri-motored airliners, and appealing to nearly all classes of prospective purchasers. There were variations within the four general types according to the type of engine used. The 4-place planes were designed primarily to appeal to individuals who would use them for private transportation, but they also were expected to have an appeal to firms using them for the transportation of executives and salesmen and to aerial taxi operators. The 6- and 8-place planes appealed principally to business firms, aerial taxi operators, and transport lines, while the market for the 12-place planes was confined almost entirely to transport lines.

¹ See also Stinson Aircraft Corporation (A), (B), (C), and (E), pp. 234, 238, 272, and 318.

Executives of the Stinson Aircraft Corporation believed that, in 1930, Stinson planes had reached such a high state of development that they, especially the 4-place Stinson Juniors, should command a large market among private individuals, and could compete with other means of transportation on an equal footing with respect to comfort and safety and on a superior footing with respect to speed. The executives stated that it no longer was necessary for owners to employ professional pilots; the planes were comparable with automobiles in ease of operation and usefulness. In the company's belief, the stability, safety, and ease of handling a Stinson plane were such that a novice could fly it once it was in the air; landings and take-offs required instruction, but such instruction was judged not much more difficult to assimilate than that for driving an automobile. The 4-place plane was as comfortable as an automobile of the same capacity, and, further enhancing the similarity, it included such equipment as an electric self-starter, shatter-proof glass, and smoking sets.

In the company's opinion, three obstacles prevented the wide private use of planes similar to the 4-place Stinson Junior. One was the high retail price; another was the fact that few potential purchasers of planes realized the ease and pleasure of flying airplanes; and finally, few realized a personal need for airplane transportation.

Of the three obstacles, the company believed that the high cost was the most important, since it prevented even many people familiar with recent developments in aviation from purchasing planes. In 1929, the usual price of a 4-place cabin plane ranged from \$10,000 to more than \$15,000, depending upon the engine used and the equipment of the plane itself.

As a part of a program designed to increase the company's sales by overcoming the apparent obstacles to the purchase of a plane by private individuals, the Stinson Aircraft Corporation had decided to effect a drastic reduction in the prices of its planes in 1930. The revised price schedule for the Stinson Junior as compared with the prices quoted late in 1929 was as follows:

	1929	1930
Stinson Junior, 4-place		
210 horsepower Lycoming motor.....	\$ \$	5,775
165 horsepower Wright motor.....	8,850
225 horsepower Wright motor.....	10,500	8,495
300 horsepower Wright motor.....	10,495

Because of its unusually low price and its presumably wide market, the Stinson Junior powered with a Lycoming motor was to be emphasized in the company's advertising. The extensive advertising campaign was intended, furthermore, to fulfill the purposes of announcing the price reductions, of convincing potential purchasers that Stinson airplanes could be flown by almost anyone, and of demonstrating that there was a definite need for aerial transportation of this type among those who could afford to buy Stinson planes.

Prior to 1930, the company's advertisements, which had been limited to aviation trade journals, had emphasized the technical excellence of Stinson planes, the high quality of the materials used in their manufacture, their performance, and the completeness of their equipment. Typical of these advertisements had been a double-page spread appearing in *Air Transportation* on March 30, 1929. The headline "A Message from Eddie Stinson to Every Man Who Will Buy Aircraft in 1929" extended across both pages. On the left-hand page was a photograph of the president of the company, beneath which was a facsimile of the following typed letter:

To Prospective Buyers of Aircraft,
Everywhere.

In my seventeen years' flying experience, I have flown many types of planes under all conditions of load and weather.

All that I have learned during those seventeen years is built into the ships that bear my name today.

You can take for granted that materials and workmanship are of the finest. Honesty demands the finest.

Far more important to you is the fact that the principles of design and construction are basically sound and in accordance with the newest and best practice in aircraft engineering.

To you who are going to buy aircraft in 1929, therefore, I say this—

You have a right to expect excellent performance and low cost for operation and maintenance. You can select any Stinson model with the fullest confidence that your expectations will be abundantly fulfilled. It is my personal conviction that Stinson aircraft deliver higher performance per horsepower at less cost than any other ships in their class.

On the right-hand page, above a large illustration of the company's recently completed factory, appeared the following text:

THE 1929 STINSONS

The Stinson Junior

A four-passenger cabin monoplane with twenty cubic feet capacity for baggage, freight, etc., in rear of the cabin. Remarkably economical to operate and ideal for training purposes. Furnished with any of the following engines: Warner Scarab 110 H.P. engine, \$6,950; Wright Whirlwind 165 H.P. engine, \$7,500; Curtiss Challenger 170 H.P. engine, \$7,750; Wright Whirlwind 225 H.P. engine, \$9,500.

The Stinson Detroit

A six-passenger cabin monoplane, with large fully equipped toilet and baggage compartment in rear of cabin. This plane is adaptable for transport of freight and for passenger operations. It can be furnished with: Wright Whirlwind 300 H.P. engine, \$12,500; Wright Whirlwind 225 H.P. engine, \$11,500.

The Stinson Detroit "Wasp"

An eight-passenger cabin monoplane. Built for commercial transport operations to carry six payload passengers with maximum comfort, and two pilots or pilot with mechanic. Large baggage and toilet facilities. This ship is equipped with the Wasp 425 H.P. engine, \$18,500.

Standard Features of All 1929 Stinson Aircraft

Hydraulic shock-absorbing landing gear; individual brakes; cabin heaters; hydraulic tail wheels; balanced rudders and Frieze type ailerons; baggage compartments; dual controls; metal propellers; extraordinary vision for pilots; cabins and chairs upholstered in beautiful Laidlaw whipcord; cabins insulated against heat, cold, and sound by means of thick layers of Balsam wool; wider and deeper cabins; greater passenger comfort; improved control system.

Operating equipment includes: Pioneer magnetic compass; altimeter; tachometer; air speed indicator; oil temperature and pressure gauges; carburetor and magneto controls; engine primer; tool kits; emergency medical kit and navigation lights.

While executives of the company thought that copy of this character was suited to trade journal advertising, they were doubtful of its usefulness in general magazines. In the first place, it was the company's desire to make aviation more commonplace. Copy similar to that quoted above, which presupposed a knowledge of aviation and of aviation terms not usually possessed by prospective buyers of airplanes for private use, was typical of trade journal advertisements. To the executives it seemed, however, that the wording of general magazine advertisements must be couched in familiar terms if any appreciable value was to be derived from them. The company's advertisements must aim, moreover, to convince consumers of the pleasure and benefit

of purchasing planes for private use. Trade journal advertisements usually took for granted that attitude on the part of prospective purchasers. An executive of the company stated that he had seen an advertisement for an airplane in a general magazine which consisted only of technical performance data and a picture of the plane.

A third disadvantage of the type of advertising which had been appearing in trade journals, in the company's opinion, was that it emphasized such things as performance data, record flights, and the difficult manoeuvres which could be performed in the plane and, consequently, tended to increase resistance to purchasing planes on the part of the general public, which already had the impression that airplanes were highly technical, dangerous, and not suited to personal use. Most prospective purchasers were far less interested in such information than they were in the safety, dependability, and ease of handling the planes.

In planning its copy approach for general magazine advertising, then, the Stinson Aircraft Corporation decided to take a different course from that which was followed in many airplane advertisements. Throughout the advertising campaign, the company planned to include material designed to create an impression that everyday flying in a Stinson plane was entirely safe. Such technical data as it was believed desirable to include would be worded so as to be understood easily; an attempt would be made to describe various reasons for owning a personal plane; and finally, the ease of flying the Stinson plane, rather than its ability to perform difficult manoeuvres, would be emphasized.

The first insertion of the series appeared as a full page in the *Saturday Evening Post* of March 29, 1930. Beneath the heading "STINSON" appeared a large picture of the Stinson Junior on the ground; two couples, with baggage and a dog, were embarking. Under the subheading "Announcing 210 H.P. 4 Place Cabin Plane \$5775," the following text was included:

Widespread private ownership and use of airplanes for transportation dates from the introduction of this new Stinson.

It is to be expected that Stinson, having been first in so many ways, would also lead by introducing the first 4-passenger cabin ship in the \$11,000 class for \$5,775.

This plane definitely and exclusively establishes a totally new standard of value.

Its new price was not justified by present volume. It was based upon the belief that when the public learned how safe, comfortable and easy it is to fly, the demand for this stable, rugged and dependable fly-itself type of ship would quickly justify its price. Already our belief has been vindicated.

Behind the Stinson program is engineering ability, manufacturing resources, financial strength, buying power and experienced management that today enable Stinson to do things impossible heretofore.

Besides introducing a better plane at a radical, new, low price, Stinson also removes many of the barriers to flying. The *kind* of plane Stinson offers makes it easy for *you* to learn to fly. We even go so far as to guarantee that you can handle this Stinson plane in the air the first time a pilot takes you up.

The purchase of a plane has now been so simplified and its use made so safe and easy that you can order your Stinson over the telephone. Then you can quickly and easily learn to fly, in your own ship, from any Stinson dealer or your own pilot.

There are Stinson sales and service agencies all over the country. Ask your local dealer for a demonstration or communicate with the factory.

The specifications which were included appeared at the lower part of the page, superimposed on the word "Safety," extending the width of the page in lightly shaded letters. The specifications were as follows:

Electric starter . . . Adjustable metal propeller . . . Wheel and emergency parking brakes . . . Cabin heaters . . . Hydraulic and spring shock absorbers . . . Rich broadcloth upholstery . . . Shatter proof glass . . . Rubber insulated motor mount . . . Gasoline gauges . . . Flying instruments . . . Dual wheel control . . . Adjustable pilot seats . . . Balloon tire tail wheel . . . Navigation lights . . . Smoking sets.

Powered by the rugged Lycoming 9 cylinder, 210 h.p. radial air-cooled motor, the Stinson has a cruising speed of 103 miles per hour, a high speed of 125 miles per hour, and a landing speed of 45 miles per hour. It will climb 600 feet per minute at sea level and will reach a maximum height of 15,000 feet, and with one filling of the gas tanks will fly 500 miles. Gasoline consumption is on the basis of nine miles to the gallon. The Stinson has a wing-spread of 41 feet 8 inches, is 29 feet long and is 8 feet 9 inches high.

The second advertisement of the series appeared in the *Saturday Evening Post* on April 26, 1930. The headline, "WHO,

ME?" was above a photograph, in the background, of a family group embarking on a Stinson Junior; in the foreground, a salesman was talking with a middle-aged man with a pleasantly surprised expression. Below the illustration was the subheading: "Yes, YOU Can Fly This Stinson in the Air the FIRST Time a Pilot Takes You Up." Superimposed over the lightly shaded word "Safety" were the following text and specifications:

This clean, quick, comfortable means of transportation is now made easy, safe and economical, comparable to that of a fine motor car.

We do not mean that you can take off and land this plane the first time, no more than you could drive your motor car down town and park it the first time behind a steering wheel.

As you ride in your own ship for pleasure or business, you can learn to fly from any Stinson dealer or your own pilot. The extraordinary sturdiness, stability and simple maneuverability of this Stinson plane make flying actually easier than driving a motor car.

Gone is the day for special "flying togs." Step out of your closed motor car right into your closed Stinson, which is luxuriously upholstered, heated, ventilated and sound proofed. Once in the air the pilot will turn the ship over to you. Immediately all doubts, confusion and misconception about flying will be erased from your mind by the actual experience of seeing how smoothly and safely this ship flies itself.

There are Stinson sales and service agencies all over the country. Ask your dealer for a demonstration, or communicate with the factory.

The first 4-Pass. Cabin plane in the \$11,000 class for—\$5,775.

210 H.P. . . . Electric starter . . . Wheel and emergency parking brakes . . . Hydraulic and spring shock absorbers . . . Shatter-proof glass . . . Gasoline gauges . . . Flying instruments . . . Dual wheel control . . . Adjustable pilot seats . . . Balloon tire tail wheel . . . Navigation lights . . . Smoking sets.

The third of this series of advertisements, appearing in the *Saturday Evening Post* of May 24, 1930, contained, under the headline "Is Flying Safe Today?", an entire page of text on this subject, with the exception of a centerpiece consisting of a small illustration of a Stinson Junior above the text: "It is a fact that any normal person can fly a Stinson plane the first time a pilot takes him up. And it is a fact that Stinson planes are easier to handle in the air than motor cars are upon the road." The principal text of this advertisement was as follows:

The lives of people always have been bounded by the radius of their transportation. At one time, the distance a horse could travel in a day was the range upon which men predicated their activities. Railroads and motor cars shrank distance and crowded years into months. Now airplanes make possible an even longer hour and a much shorter mile. Social contacts and business calculations are now expanding to the wider radius of flying. It is not exaggeration to say that airplanes will remake the map of America, introducing even greater changes than the transition from ox carts to railroads. Because such a phenomenon stirs the imagination, there is need for sober judgment. While airplanes make possible totally new and better living and business conditions, yet they are mechanical vehicles for transportation, and as such are not immune from restrictions. An ocean liner, a locomotive, or a motor car is as safe as the person in command of it. So is an airplane. Ocean liners must watch storm warnings and often lie anchored until the fog clears. A railroad engineer must continuously obey signals. No motor car owner can drive safely if he ignores traffic regulations and road conditions. We believe that flying is actually safer when it is regulated by the same consideration and common sense required in other means of transportation. We believe the sooner this common sense view of flying is accepted and the "romance of being bird men" is forgotten, the sooner the general public will enjoy the utility benefits possible only through flying. This is the attitude that determines the Stinson policy. It is reflected in the type of plane Stinson builds. Sturdiness, safety and ease of handling are the dominant requirements placed upon Stinson planes. They are built for American family use, rather than for "stunting." They are built capable of day in and day out dependable service, proven by the regularity with which they are meeting transportation schedules for all kinds of purposes in all parts of the world today. They afford, in the air, the same comforts and luxuries to which people are accustomed in land conveyances.

Flying is no longer a prophecy—it is a reality today. Although some people will never enjoy this means of travel, aviation is here, now.

Other advertisements with similar appeals were scheduled to appear in the *Saturday Evening Post* through June, 1930. In addition to emphasizing the low price and ease of flying the Stinson plane, future advertisements were also to stress the advantages of purchasing a plane for personal transportation. In the company's opinion the average individual whose means permitted the purchase of an airplane in the Stinson class did not visualize the uses he might make of a plane. Looking forward

to a gradual growth of its sales over a period of years, the company planned to emphasize in subsequent advertisements the various ways in which individuals might use airplanes advantageously. Thus the company recognized the need of general public education which would lead to acceptance of the airplane as a means of transportation.

COMMENTARY: In its 1930 advertising campaign the Stinson Aircraft Corporation desired to develop primarily the potential market which it believed to exist for airplanes among private individuals. For this purpose it is clear that the type of advertising copy which the Stinson Aircraft Corporation had been using in trade journals was not suitable. Not only did this copy include too many technical features and place too much emphasis on the ability of the plane to perform difficult maneuvers, but in no sense did it undertake to stimulate primary motives for the purchase of an airplane.

In the type of copy adopted for its *Saturday Evening Post* campaign,² with emphasis directed to the ease and safety of flying, the company unquestionably was taking a step in the right direction. There was still a question whether this type of copy did not assume the existence of a stronger primary demand for airplane transportation than actually existed in 1930; in its later advertising, the company no doubt would find it necessary to explain to the consumer the uses that he might make of a plane and the methods by which he might overcome such obstacles to everyday use as appeared to be presented by the limited number of landing fields, the inconvenient location of airports in relation to large cities, the need of hangar space, and so on.

It is true that the Stinson Aircraft Corporation already could take for granted a general demand for swift, safe, comfortable, economical transportation. The great differences between the airplane and other vehicles, however, seemingly made it desirable to devote a substantial part of the advertising copy to stimulating the imagination of the potential purchaser as to the effective uses of planes and particularly as to the conditions under which planes offered manifest advantages over other forms of transportation, and to overcoming the objections in the minds of possible purchasers with respect to existing limitations on the convenient use of private aircraft.

June, 1930

M. P. M.

² See the case of the Stinson Aircraft Corporation (B), p. 238.

32. VIKING FLYING BOAT COMPANY (B)¹

MANUFACTURER—FLYING BOATS

ADVERTISING—*Change from Promotional Copy to Institutional Type in Magazines.* A company newly organized for the manufacture of flying boats had started an extensive magazine advertising campaign using copy designed to sell its products. After eight months of this advertising, the president of the company decided to reduce the advertising expenditure and at the same time proposed to change the type of advertising. Believing that the sale of an airplane required a series of personal interviews, that prospective purchasers would not be influenced by advertisements, and that few people read the copy, the president suggested that the company use full page advertisements of the poster type, designed solely to impress consumers with the name of the plane or the company.

(1930)

The Viking Flying Boat Company was organized in 1929 to manufacture Viking flying boats with or without amphibian equipment. Shortly after its organization it started an extensive magazine advertising campaign using copy of a sales promotional rather than institutional nature. In April, 1930, prior to the completion of the company's first flying boat, the president of the company decided to reduce the advertising expenditure by a substantial amount. At the same time, he proposed to the advertising manager that the type of advertising be changed to that designed only to impress the name of the product on prospective purchasers.

The Viking flying boat was an American adaption of the Schreck F. B. A., a French flying boat of outstanding flying characteristics. The Schreck flying boat was standard equipment in the French Navy, was used by the navies of several other countries, and was widely used in most countries except the United States. The president of the Viking Flying Boat Company stated that the Schreck F. B. A. was perhaps the outstanding flying boat in the world. The company, capitalized at \$250,000,

¹ See also Viking Flying Boat Company (A), p. 54.

owned a small plant in New Haven, Connecticut, and also operated an aerial taxi and short hop service in Miami, Florida, with flying boat equipment.

The Viking flying boat was a 4-place open cockpit biplane with a Wright Whirlwind 225 horsepower motor operating a pusher propeller. Its high speed was 102 miles an hour; cruising speed, 90 miles an hour; landing speed, 40 miles an hour; ceiling, 14,000 feet; and climb, 600 feet a minute. With amphibian equipment, performance figures were slightly reduced. The retail price for the amphibian was \$13,500; for the flying boat, the price was slightly less.

The comparatively high price of Viking flying boats so restricted the market for them that the president proposed producing also seaplanes to sell for approximately \$5,000. A flying boat was superior to a seaplane in ease of docking and maneuverability, but could not be produced at so low a price. Early in 1930 the Viking Flying Boat Company purchased the Bourdon Aircraft Corporation, manufacturer of the Kittyhawk, a three-place biplane, and moved that company's manufacturing facilities to New Haven. Although the Kittyhawk was designed as a land plane, it could easily be converted into a seaplane by the substitution of floats for landing gear. The retail price of the Kittyhawk as a land plane was \$4,800; as a seaplane, \$5,200.

The president of the Viking Flying Boat Company believed that, for a few years at least, the purchase of airplanes by private individuals would be confined to the wealthier classes because of the high initial cost of planes and the high cost of upkeep. His experience had convinced him that the products of the Viking Flying Boat Company would appeal to two promising markets: wealthy sportsmen and fixed-base operators located on the coast line or near large inland bodies of water.

The primary advantages of amphibians, flying boats, and seaplanes over land planes, in the president's opinion, lay in their safety; landing facilities for them often were more readily available than for land planes, and low flying consequently was less hazardous. Low flying, in the opinion of the president, held many attractions over high flying.

The safety of the flying boats, amphibians, and seaplanes and the attractions of such a method of travel would be important factors in developing a demand for them from the patrons of

fixed-base operators. The president decided, however, to develop first the private market, because of his wide acquaintance among sportsmen who might purchase the products of the company, and because of the limited number of fixed-base operators using, or in a position to use, flying boat, amphibian, or seaplane equipment in 1930.

The president had not reached a final decision on the method of distribution which the company would employ, but he expected that eventually it would be through dealers directly from the factory. For the immediate future, the company probably would sell directly to purchasers. The president planned to confine the initial selling effort to New England and to New York City and Miami and their environs.

The company had been advertising the Viking flying boat since September, 1929, and, with the acquisition of the Bourdon Aircraft Corporation, started advertising the Kittyhawk biplane also. By the end of April, 1930, the company had expended approximately \$20,000 in full page advertisements in the following magazines:

Periodical	Frequency of Insertions
<i>Aviation</i>	Weekly
<i>Aero Digest</i>	Monthly
<i>Time</i>	Monthly
<i>The Sportsman</i>	Monthly
<i>The New Yorker</i>	Every Two Months

Typical of the advertisements for the Viking flying boats and amphibians was one appearing in *Aviation* in the issue of April 5, 1930. The upper half of the page contained a photograph of the plane in flight, set against a modernistic background of stars and clouds. Beneath the illustration was the following headline and text:

ABOVE ALL ELSE A FLYING "BOAT"

For safety on the water and performance in the air, a flying boat must be first a "boat," seaworthy in every respect. It must possess all those qualities which experienced yachtsmen demand, and should be designed by a naval architect. The flying ability of the boat is then the responsibility of an aeronautical engineer.

The stamina, gracefulness, and easy maneuverability of the Viking, both on the water and in the air, are the achievements of Louis Schreck, who was first a yacht designer, then an aeronautical engineer working with naval architects.

Moderate in size, unequalled by others in the same price range, the Viking is the result of fifteen years effort to perfect a

flying boat equally at home on the water and in the air—seaworthy—airworthy. The Viking is built in America and powered with a 225 h.p. Wright J-6 engine.

VIKING FLYING BOAT

Another advertisement for the flying boat contained, in the upper right quarter of the page, a photograph of the plane in flight set within a modernistic border. To the left of the illustration was the line, in small type, "Behind it a record of 6,000,000 miles without a structural accident." At the lower left of the photograph appeared the headline "Hands off controls—feet off the rudder," with the following text occupying the remainder of the page:

Cruise along at eighty miles an hour . . . hands off the controls . . . feet off the rudder . . . open her up to more than a hundred miles an hour . . . cut the engine and the Viking glides gracefully along on her wing span of 42 ft. 3 in. Compare this span . . . compare her 448 sq. ft. wing area with that of any plane of similar size or power . . . no wonder the Viking has such ability to get off the water, to climb, to maneuver . . . no wonder it is such a safe boat to fly.

The Viking Amphibian and Flying Boat were designed by Louis Schreck, who, for more than fifteen years, devoted his experience and ability to the development of a moderate size flying boat. The result of his effort is known in Europe as the Schreck, F.B.A. . . . a plane of sturdy construction and remarkable performance. It is standard equipment in the French Navy—where it is used in training pilots, catapulted from ships, and where it receives strenuous use with the fleet at sea.

Founded upon Schreck experience, the Viking is built in America, by American capital, by American workmen and powered with a 225 h.p. Wright J-6 engine. It is a plane of unusual maneuverability and performance, but above all else it is a plane of exceptionally safe flying qualities.

THE VIKING FLYING BOAT

All the company's advertisements of flying boats and its occasional advertisements of the Kittyhawk were similar to these. One of the advertisements of the Kittyhawk, which appeared in *Aero Digest* for April, 1930, contained in the upper half section a photograph of the Kittyhawk in flight, and to the left of the illustration a complete table of performance and specification data. Beneath the illustration were the following headline and text:

SOME PLANES ARE BUILT FOR SPEED

But to gain superiority in either speed or stunt performance, a plane must sacrifice safe flying qualities. The Kittyhawk will travel 110 miles per hour . . . It will out-perform most planes in its class . . . but we have not attempted to develop these features at the expense of safe flying.

The Kittyhawk is a light, three-place biplane . . . built for training, commercial, and private use . . . With a landing speed of 38 miles per hour . . . with a wheel tread of 7 ft. 2 in. . . an inexperienced pilot can get into or out of small rough fields with a greater degree of safety.

Try to spin the Kittyhawk . . . a few skilled pilots have been able to hold it in a spin for three or four turns . . . not more. Certainly, this is a feature of safety which few planes can duplicate.

THE KITTYHAWK

Also manufacturers of the Viking Flying Boat

After the company had carried on this advertising for eight months, the president stated that he had decided to reduce the extent of the advertising and recommended that the advertising manager change the type of copy used. He believed that \$20,000 was too large an expenditure for that period for a company of such limited resources. Accordingly, he had decided to reduce the number of periodicals the company would use to two, *Aviation* and *The Sportsman*. He considered *Aviation* to be the outstanding trade journal, reaching not only those in the industry, but also other persons interested in flying. *The Sportsman* was read by several of his acquaintances, each of whom possessed sufficient wealth to purchase a plane, and he believed that a majority of the readers of that periodical were in a similar position. The other periodicals, he believed, were less valuable to the company.

The president was convinced that the sale of an airplane required a series of personal interviews, that prospective purchasers would not be influenced by advertisements, and that probably few people read the copy anyway. He had reached the conclusion that airplane advertising should be designed solely to impress consumers with the name of the plane or the company, so that when a salesman made a call, the prospective purchaser would more readily listen to him. In his opinion, the inclusion of copy weakened the impression the company's name made upon

the minds of readers, since the name was included with other material in which the prospective purchaser was little interested.

As an improvement on the previous type of advertising, the president suggested that the advertising manager use full page advertisements of the poster type. Such advertisements would have an unusual layout designed to attract attention and would include an illustration of the plane, realistic or idealistic; some such phrase as "The outstanding flying boat in the world" or "Outstanding in performance"; and the name "Viking Flying Boat" in large type; no other copy would appear.

COMMENTARY: The decision of the Viking Flying Boat Company to reduce substantially its advertising appropriation early in 1930 was in accordance with the policy of retrenchment which was adopted by a number of units in the aviation industry at that time. There can be no criticism of such reductions in expenditures where they were made primarily for financial reasons or where they were initiated as an integral part of a policy of analyzing markets more carefully before proceeding with increased sales promotion activities. Primarily, however, the aviation industry should have recognized from the experience of other pioneer industries that in 1929 and 1930 it was at least approaching, if not entering on, a period when sales promotion activities might properly be expected to call for expenditures amounting to a relatively high percentage of the net sales dollar. For the Viking Flying Boat Company, there was the additional question whether extensive advertising before its products were available for distribution might not be premature.

The market for the Viking Flying Boat Company's products consisted primarily of two distinct groups: (1) wealthy or fairly well-off sportsmen, and (2) fixed-base operators. For either type of market the president's conviction was correct that sales could be consummated only by personal contact and that advertising could accomplish no more than facilitating the salesman's approach. From the standpoint of advertising, however, each of these two markets required a different approach. In the case of individuals who might become potential purchasers of flying boats, amphibians, or seaplanes, there existed the fundamental need of stimulating primary rather than selective buying motives; that is, the first necessity was to stimulate among the persons making up this market a strong desire for flying as a means of transportation. And until such a desire was stimulated there was little possibility of arousing such selective buying motives as might lead potential purchasers to prefer the Viking product to other makes of planes. In the case of fixed-base operators, however, there was not the same neces-

sity for arousing primary buying motives. These persons were already engaged in flying operations and presumably were familiar with the characteristics of planes offered by leading manufacturers in the industry.

The change to advertisements of the poster type featuring the name of the product and including practically no other copy probably would make little difference in the effect on fixed-base operators reached through such a medium as *Aviation*. It was reasonable to expect that such institutional copy, merely keeping the name of the company before these prospective purchasers, would be fully as effective as the more detailed "reason-for-preference" copy previously used.

To reach the other market, of potential individual users of planes, through such a medium as *The Sportsman*, however, it is not clear that either type of copy was satisfactory. As previously indicated, the persons constituting this market needed first of all to be sold on the idea of flying. Copy aimed at this market, therefore, should have stressed primarily the advantages which flying as a means of transportation offered to this group, such as the saving in time and the convenience of using flying boats or planes to reach distant fishing or hunting grounds or to commute to distant summer residences.

June, 1930

M. P. M.

33. STINSON AIRCRAFT CORPORATION (E)¹

MANUFACTURER—AIRPLANES

ADVERTISING—*Selection of Mediums.* For announcing a reduction in the price of its products and for advertising them, an airplane manufacturer decided to use three full-page advertisements in the *Saturday Evening Post* rather than a larger number in other magazines with smaller, but more selective, circulations.

(1930)

Early in 1930, the Stinson Aircraft Corporation, in an attempt to increase its sales of airplanes by reaching a wider market, had reduced its prices. For announcing the new prices and advertising its planes, the company was undecided whether to spend its appropriation for three full-page advertisements in the *Saturday Evening Post* or for more frequent insertions in such magazines as *Time* and *Nation's Business*.

The Stinson Aircraft Corporation, located near Detroit, Michigan, was organized in 1926, and started the commercial production of planes in 1927. In November, 1929, the company was absorbed by the Cord Corporation, a holding company in the automotive field. Other important subsidiaries of the Cord Corporation were the Auburn Automobile Company and the Lycoming Manufacturing Company. The Lycoming Manufacturing Company produced a wide line of internal combustion engines for use in automobiles, tractors, and boats; early in 1930, it also had perfected a 9-cylinder air-cooled radial aircraft engine of 210 horsepower which it was ready to put into commercial production at that time.

In 1929, the Stinson Aircraft Corporation manufactured 4 models of planes. The Stinson Junior was a 4-place cabin monoplane powered by a 165 horsepower motor and selling at retail for \$8,850. Another model of the Junior, powered by a 225 horsepower motor, sold at a retail price of \$10,500. The Stinson

¹ See also Stinson Aircraft Corporation (A), (B), (C), and (D), pp. 234, 238, 272, and 302.

Junior models had been developed primarily to furnish comfortable aerial transportation to private individuals who would use them for pleasure flying and for family transportation. Another market for these models was among purchasers who would use them for aerial taxi service or for the transportation of business executives and salesmen.

The Stinson Detroiter, the third model in the company's line, was a 6-place cabin monoplane equipped with a 300 horsepower motor and selling at retail for \$13,500. The market for this model consisted principally of transport lines, aerial taxi operators, and firms using it for transportation of personnel or merchandise. The fourth model, the 8-place Stinson Wasp, powered with a 425 horsepower engine, was priced at \$19,500 and was designed to appeal principally to transport lines and also to aerial taxi operators and business firms.

Executives of the Stinson Aircraft Corporation were convinced that, in 1930, Stinson planes had reached such a high state of development that they should command a large market among private individuals and could compete with other means of transportation on an equal footing with respect to comfort and safety and on a superior footing with respect to speed. Company executives were convinced that the stability, safety, and ease of handling the planes were such that a novice could fly them once they were in the air; landings and take-offs required instruction, but such instruction was not much more difficult to assimilate, in the executives' opinion, than was that of learning to drive an automobile. The 4-place plane was as comfortable as an automobile of the same capacity, and, further enhancing the similarity, it included such equipment as an electric self-starter, shatterproof glass, and smoking sets.

In the company's opinion, three obstacles had prevented the wide private use of planes similar to the Stinson Junior. One was the high retail price; another was the fact that few potential purchasers of planes realized that the development of the airplane had reached a point where a professional pilot was not necessary; and finally, few people realized that there was a personal need for airplane transportation.

As a part of a program designed to increase the company's sales by overcoming the apparent obstacles to the purchase of planes by private individuals, the Stinson Aircraft Corporation

decided to reduce drastically the prices of its planes. The executives believed that the price reductions made would effectively remove the price objection of potential purchasers of airplanes, especially those who would purchase them for private use. It appeared to company executives that the necessity of announcing the price reductions, of convincing potential purchasers that the Stinson airplanes could be used and flown by anyone, and of demonstrating that there was a definite need for aerial transportation of this type among those who could afford to buy a Stinson plane, could best be fulfilled by an extensive advertising campaign in general magazines. For this purpose the company appropriated \$25,000 to use during the first four months after its reduction in prices.

The company's choice of mediums for reaching prospective purchasers lay between two general types: frequent full-page space in several of such publications as *Time*, *Nation's Business*, and *World's Work*; or three full-page advertisements in the *Saturday Evening Post*. The former type appeared to possess two outstanding advantages: their circulations were said to be confined chiefly to well-to-do readers of the type who were sufficiently progressive to understand the advantages of air travel and who were sufficiently wealthy to purchase airplanes; and the rates for full-page space were sufficiently low to permit the company to insert several advertisements in each magazine over the four-month period. On the other hand, the circulation data for each failed to show that the readers were mostly concentrated in states which were good potential markets for planes, as judged by the wealth, the number of airports, the number of licensed pilots, and the number of licensed planes per capita.

Use of the *Saturday Evening Post*, on the other hand, would cost the company its entire appropriation for only three full pages; moreover, there were many readers of the *Saturday Evening Post* who were not likely to purchase planes.

Nevertheless, the *Saturday Evening Post* possessed certain important advantages as a medium for accomplishing the purposes of the company's campaign. Executives of the Stinson Aircraft Corporation believed that the prestige of the medium used was of primary importance and that the prestige of the *Saturday Evening Post* as an advertising medium was unequalled. Again, the executives of the Stinson Aircraft Corporation doubted that the

amount of waste circulation involved in using the *Saturday Evening Post* would be large or important. Although it was true that not all readers of the magazine could purchase airplanes, a substantial number of them were in a position to do so and, since the company could not be certain of just what persons were most likely to become customers, by using a more selective medium it might fail to reach many prospective purchasers. Furthermore, circulation data for the *Saturday Evening Post* demonstrated that the division of its readers by states was in close relation with the potential market for airplanes by states as judged by the criterions cited previously. Finally, the Stinson Aircraft Corporation believed that an advertising campaign in the *Saturday Evening Post* would be noticed by nearly all those persons who would have been reached by the use of such mediums as *Time*, *Nation's Business*, and *World's Work*.

The company decided to contract with the *Saturday Evening Post* for three full-page black-and-white advertisements over a period of four months during the spring of 1930. The first advertisement announced the new prices on Stinson planes and emphasized that the Stinson Junior's ease of operation, dependability, safety, and low price definitely classified the airplane as a medium of everyday transportation, in the same category as the automobile. The later advertisements emphasized such buying motives as the ease with which one could learn to fly a Stinson Junior, and the advantages of owning one. As a rule, a single buying motive received special emphasis in each advertisement.

COMMENTARY: The market for the Stinson Aircraft Corporation's products consisted of private individuals, business firms, fixed-base operators, and air transport lines. In 1930, however, the company desired to expand its market for the Stinson Junior models among private individuals; and in planning its advertising to reach this market the company decided that the principal issue in choice of mediums lay between such publications as *Time*, *Nation's Business*, and *World's Work* on the one hand and the *Saturday Evening Post* on the other. In favor of the first group were the factors of greater selectivity and greater frequency. The use of the *Saturday Evening Post* apparently would involve much waste circulation, and because of the much higher rates the company's entire advertising appropriation could be used for only three full pages.

It is the commentator's opinion, nevertheless, that the company made a sound decision in electing to use the *Saturday Evening Post*.

In the stage of development reached by the aviation industry early in 1930, it was essential to promote public acceptance of the airplane as a means of transportation on substantially the same footing as the automobile. Because of the prestige and wide circulation of such a medium as the *Saturday Evening Post* the occasional appearance in its pages of airplane advertising side by side with automobile advertising was probably an effective advertising means of starting to persuade the average person that airplane transportation was an accomplished and commonplace fact.

It is true that the Stinson Aircraft Corporation probably could not hope to achieve in 1930 a substantial volume of sales traceable directly to its copy in the *Saturday Evening Post*. From the long run standpoint, however, it was a desirable policy for an airplane manufacturer with adequate financial backing to take the lead in promoting public acceptance of the airplane as part of everyday life.

June, 1930

M. P. M.

34. GREAT LAKES AIRCRAFT CORPORATION (C)¹

MANUFACTURER—AIRPLANES

ADVERTISING—*Selection of Mediums.* During 1929 an airplane manufacturing company had spent 40% of its advertising appropriation for trade journal advertising and 60% for advertising in general magazines. In order to improve the effectiveness of the advertising program, the company decided in 1930 to reduce the expenditure for trade journal advertising and to carry on an extensive plan of direct mail advertising.

(1930)

During 1929, the Great Lakes Aircraft Corporation had spent approximately \$90,000, or 3% of total sales, in advertising its principal commercial product, the Great Lakes Sport Trainer. The sum of \$36,000, 40% of the total appropriation, had been expended in trade journal advertising; the remaining \$54,000, representing 60% of the appropriation, had been used for advertising in general magazines read, in the company's opinion, by intelligent and reasonably wealthy consumers. In making plans for the company's advertising program in 1930, the sales manager stated that, in his belief, the sum appropriated for general and trade magazine advertising should be reduced in order to make funds available for a direct mail advertising campaign.

The Great Lakes Aircraft Corporation, a subsidiary of Allied Motor Industries, Incorporated, had been formed in October, 1928. The company operated a large and modern factory in Cleveland, Ohio, with a company flying field immediately adjacent to the plant. The company manufactured several types of airplanes, including those made on special order for the United States government. Its principal commercial product, however, was the 2T-1A, or Sport Trainer, model, a 2-place open-cockpit biplane powered with the American Cirrus Mark III engine, developing 90 horsepower.

The Great Lakes Sport Trainer, selling at retail in 1929 for \$4,990, was designed to meet the requirements of a plane used for

¹ See also Great Lakes Aircraft Corporation (A) and (B), pp. 162 and 241.

flight training by flying schools; for pleasure flying by private individuals; and for the transportation of executives, salesmen, emergency orders, and spare parts by business firms. The Great Lakes Aircraft Corporation was confident that the Sport Trainer was superior to any other plane of its class and of comparable horsepower in performance, ease of handling, safety, and quality of construction. During 1929, the company had sold more than 75 of its Sport Trainer planes.

In that year the entire distribution of Great Lakes planes to civilian users had been effected through a system of distributors and dealers. This system of distribution had not been wholly satisfactory, however, and in 1930 the Great Lakes Aircraft Corporation discontinued use of distributors and began selling direct to dealers, granting them a discount of 15% to 25%, the exact amount of the discount depending upon the number of planes purchased during a period.²

The major portion of the sales of Sport Trainer planes in 1929 had been to flying school operators who were Great Lakes dealers and who used the planes in carrying on training operations. Comparatively few of the planes had been sold to private individuals and to business companies, although the company was convinced that these two groups contained by far the largest number of potential purchasers of planes of the type of the Sport Trainer.

Of its total advertising appropriation of approximately \$90,000 for 1929, the Great Lakes Aircraft Corporation had expended \$54,000 for space in such magazines as *Time*, *Nation's Business*, *Business Week*, *World's Work*, *Review of Reviews*, *Sportsman*, *Town and Country*, and *Sportsman Pilot*. In selecting its mediums, the company had approached the publishers of various magazines which appeared to circulate among a group of progressive and intelligent consumers. If a scrutiny of circulation data demonstrated that readers of the magazine commanded a high average income, monthly full-page space was contracted for.

The next step in making up the advertising program had been to decide what was the most effective appeal to use in each magazine. The Great Lakes Aircraft Corporation believed that the appeals which would be most effective in inducing purchase of a Sport Trainer for private flying differed from those which would be most effective in inducing purchase for use in business.

² See Great Lakes Aircraft Corporation (A), p. 162.

In the first instance, emphasis on the pleasure and the thrill of flight was believed to be most useful; and, in the second, the speed of air transportation and the competitive advantage which it gave to business companies using it were considered the best appeals. The circulation data of each medium were examined to determine whether the average reader would be interested in the use of a plane for pleasure or for business, and the appeals to be used were selected accordingly.

Typical of the advertisements designed to appeal to business executives were those appearing in *Nation's Business* in November and December, 1929. Each occupied a full page. The November advertisement pictured, in the upper half, a Great Lakes plane speeding over the countryside; beneath the illustration were the following headline and text:

He Had to Be in Omaha That Afternoon

A salesman for an oil company—a big contract in Omaha (five hundred miles away) if he can get there ahead of his competitors.

A Great Lakes Sport Trainer—part of the regular traveling equipment of the company's best salesmen—fast, light, economical—and *profitable*.

Result—salesman called hours ahead of anyone else—obtained the order. Cost of transportation *less than by rail or bus*. Substantial profit, made possible only through quick action.

A frequent occurrence with a Great Lakes Sport Trainer—and it can play a similarly

important part in *your* business—or in your personal transportation when you want to go somewhere in a hurry.

A two-place biplane, powered by the famous American Cirrus air-cooled motor—easy to handle—easy to land and take off almost anywhere—exceedingly sparing in gas and oil. A quality ship—perfectly balanced and beautifully engineered by a sound organization thoroughly experienced in aircraft production.

An interesting new booklet tells the story in detail—illustrated in colors—sent on request.

GREAT LAKES AIRCRAFT CORPORATION CLEVELAND

The advertisement appearing in *Nation's Business* for December featured a diagrammatic representation of the practical differences in the size of the United States as exemplified by the speed of the prairie schooner in 1850, the railroad in 1910, and the

airplane in 1929; the comparison was made by means of maps drawn to scales corresponding to the time required to travel across the continent. Beneath this illustration appeared the following headline and text:

COMPACT AMERICA

From the days before the Civil War, when the Atlantic was 28 days from the Pacific—till now when a Great Lakes Sport Trainer could span the country in 32 hours—the demand for faster transportation has steadily made America more compact.

Today, the banker from New York and the business man from Texas can meet in Chicago in a few hours. Florida is a short trip for the man from Boston. California and the northwest are quickly reached from any part of the country.

The salesman equipped with a Great Lakes Sport Trainer can cover many times as much

territory as he used to—in the same time—*and at a substantial saving in transportation expense*, because his plane actually embodies something new in aviation—real versatility.

It is a Cirrus-powered two-place sport training ship with a pursuit plane complex—beautifully engineered—fast—light—and highly maneuverable—yet perfectly steady in almost any weather—dependable—extremely rugged—uses only six gallons of gas an hour and covers a hundred miles in the process.

A new and interesting booklet giving complete details and illustrations in color is ready for mailing. Send for your copy.

GREAT LAKES AIRCRAFT CORPORATION CLEVELAND

Advertisements in those general magazines appealing to potential purchasers of airplanes for pleasure flying emphasized the pleasure of flight and the entirely new kind of thrill that could be obtained from the purchase of an airplane. The advertisement included a description of the Great Lakes plane and also urged the prospective student to learn to fly in a school where Great Lakes planes were used for training.

In response to inquiries from these general magazine advertisements, the company sent a catalogue of the Sport Trainer, describing the merits of its construction and performance; inquiries from business men also were answered with a list of business uses and users. The name of each inquirer was sent to the dealer operating in the territory from which the inquiry came.

The remaining \$36,000 of the advertising appropriation in 1929 was expended in frequent full-page advertisements in all the leading aviation trade journals. One series of such advertisements, appearing in *Air Transportation*, *Airway Age*, and other trade journals, consisted of a general description of the company and of its policies. A typical advertisement of this series contained a large illustration of a workman and an executive looking over a blue print, with a corner of the interior of an aircraft factory in the background. Beneath this illustration was the headline "PRODUCTION," and the following text:

To build ships in sufficient numbers to effect substantial economies in manufacture and distribution—but to maintain at all times a more than ample margin of safety in each process of construction—that is the production creed of the Great Lakes Aircraft Corporation.

While modern equipment and modern progressive assembly methods make it possible to produce a ship a week for each thousand feet of floor space, quantity must never be attained at the expense of quality.

Every piece of material that goes into a Great Lakes plane is laboratory tested.

From the rigid inspection at each successive step in its assembly to the flight test of the completed plane, safety and reliable service are uppermost in the minds of every man who has to do with its construction.

But back of the care in production, back of the testing and the inspection—experienced engineering has developed a sound, fundamental design that makes the finished product a delight to handle, an extremely economical means of transportation, a rugged, serviceable ship—with a startling record for performance.

Production—yes, constantly increasing orders demand it—but leadership is never attained on quantity alone. It is quality that builds success.

The Great Lakes plant at Cleveland is in production—quality production. You are invited to visit it—to see its eighty acres of ground—its landing field—its hangars—its laboratories—its engineering department—its production facilities—and to meet the young, aggressive organization that is taking such an important place in the development of American air transportation.

Number Six of a Series of Fact-statements Regarding a New
Industrial Leader—

GREAT LAKES AIRCRAFT CORPORATION

Other trade journal advertisements described record performances of the Great Lakes Sport Trainer. One of these, occupying a full page in *Airway Age* for October, 1929, contained a map and photographs of a flight, which was described in the following headline and text:

VANCOUVER to MEXICO

AT 100 MILES AN HOUR! . . . GAS \$22.50

1,350 miles in 13 hours and 7 minutes—in a stock model Great Lakes Sport Trainer—Tex Rankin at the controls—take off at Vancouver—south over the United States—landing at Agua Caliente, Mexico the same day—no stops—only 75 gallons of gas—that's Performance!

Exact counterparts of this marvelous ship are now being produced in volume—engineered to the highest quality standards.

The Great Lakes Sport Trainer is the outstanding value in the light airplane field. Write for new illustrated booklet and complete details.

Several trade journal advertisements emphasized the desirability of the Great Lakes franchise in the following manner:

WIRE OR WRITE!

Great Lakes Aircraft Corporation has developed a proven Operating-Sales Plan that now makes it possible for any capable individual or group to make money—*real money*—in the airplane business.

This unique plan is built around—

1. A line of ships of exceptional merit—approved by the Government—designed for the utmost in safety and efficiency—smart and salable—up-to-the-minute in equipment—economical in operation—priced on a quantity-production basis.

2. A practical and effective plan of merchandising that insures profits both to distributor and dealer from the start—and also develops a lasting source of noncompetitive business.

3. Constant and active cooperation of a highly capable sales promotion organization whose motto is: "Sell ships by helping the distributor and dealer sell."

4. Distributors and dealers who are business men with selling ability, energy and reasonable working capital.

If you are earnestly seeking an opportunity to make money and establish yourself permanently in the airplane business, wire or write us today, outlining your sales or business experience and present connections. There is still some valuable territory available for the right type of men.

At the end of the Great Lakes Aircraft Corporation's 1929 advertising campaign, the sales manager believed that the results, so far as advertising in general magazines was concerned, had been satisfactory. A large number of inquiries had been received in response to the general magazine advertising; but, since the company's distributing system had not yet been expanded to cover the entire United States, many of the inquiries could not be followed up properly. Approximately 50% of these inquiries had been received from children, judging from the handwriting and the stationery used.

Although he was satisfied with the results attained through the use of general magazines, the sales manager was not satisfied with the use of aviation trade journals. He believed that the only proper use of trade journal advertising was for the purpose of obtaining additional dealers. In his opinion, relatively few people except those actively participating in the aviation industry read that type of magazine; moreover, because of the comparatively small size of the aviation industry, nearly everyone actively engaged in it was familiar with the activities of other persons and other companies and with the characteristics of the different products. As a result, the sales manager firmly believed that trade journal advertising was largely wasted. He estimated, however, that 90% of the aviation industry's total expenditures for advertising in 1929 had been expended in trade journals.

In summarizing the situation which the Great Lakes Aircraft Corporation faced in making plans for its 1930 advertising campaign, the sales manager stated that it was necessary for the company to reach the general public in a more effective manner. During 1929, a large portion of the company's sales had been made to flying schools which purchased the planes for use in their operations. In his opinion, this market would be a less fertile field for the sale of planes in 1930, since such a large number of flying schools had been established in 1929 that they would be able to meet the probable demands for their services in 1930 with little expansion either in numbers or in equipment.

The sales manager classified the market which he had termed the "general public" into two groups: those potential purchasers who would use a plane for pleasure flying, and those who would use it for business. It would be difficult to isolate the worth-while prospective customers of the first class; use of a plane in business,

however, presumably would be confined largely to the executives and salesmen of those companies which were large enough to cover a substantial portion of the United States in their operations. The names of the executives of such companies could be obtained easily. Moreover, the names of most of the airplane distributors and dealers and the flying school operators located in the United States could be obtained without difficulty, for use in direct mail advertising.

The sales manager of the Great Lakes Aircraft Corporation concluded that the situation called for the use of a substantial portion of the 1930 advertising appropriation in a direct mail campaign. Direct mail advertising addressed directly to prospective customers would not be subject to the waste circulation involved in using magazines. On the other hand, it appeared necessary to continue the use of general magazines to reach those individuals who might purchase planes for pleasure flying but whose names could not readily be obtained. It also seemed desirable to continue some trade journal advertising, not only to obtain the names of additional flying school operators and plane distributors and dealers, but also to create goodwill and prestige in the industry.

No essential change from the appeals used in the 1929 advertising campaign was contemplated, except that the trade journal advertising, which was to be confined largely to obtaining new dealers, would stress the advantages of the Great Lakes franchise and of the use of the Sport Trainer in flying school operations. Advertisements in general magazines emphasized the thrill of flight, the advantages of learning to fly in a Great Lakes plane, and the desirability of forming a flying club. A typical advertisement of this character was headed by an illustration of a Great Lakes Sport Trainer, with the headline and text as follows:

Pretty? Listen . . . Nothing Prettier Ever Flew!

When you climb into a Great Lakes Trainer for your first trip aloft, you know you're in an *airplane*! Give 'er the gun; roar away to a zooming take-off! Touch the joystick for a bank—there's almost human coordination between rudder and ailerons. Throttle 'er down for a slow, smooth, three-point landing. Boy!—that's *Life* for you!

Learn your flying where they teach you in a Great Lakes Trainer and you'll never have to apologize for your school or your ship. Even if you start in something else, you owe it to yourself to *com-*

plete your course in a Great Lakes ship. The Trainer is just about the neatest trick you ever cocked an eye over. Graceful. Fast. Rugged. And good looking as the girl in that blue roadster yesterday.

Motor? An American Cirrus that roars an indication of its mighty power every time you open the throttle. Safe?—well, it's engineered to the strictest specifications—built by men who are fliers and know flying.

As a matter of fact, if you really want to *learn* about the air and the thrill of flying, the Great Lakes Trainer will teach you. Write for our new illustrated book, "Learning to Fly." It's free!

GREAT LAKES AIRCRAFT CORPORATION CLEVELAND

To the left of the text, there was a small illustration of a man driving a truck, beneath which was the following text:

Learn how to drive with a truck? How absurd! What YOU want is today's smartest roadster—full of pep and power and fight and go! Something that jumps when you touch the accelerator—something dashing and spirited—alive.

Another advertisement in this series contained a large illustration of a plane in flight and on the ground two people watching it. Beneath the illustration was the headline "A MILE UP—that's where the THRILL is!", and the following text:

Organize a Flying Club under the auspices of the National Aeronautical Association. Get a group of your friends together and go in for the most thrilling sport the world has ever known—virile, red blooded sport that makes anything you ever tried before seem tame. Write today for comprehensive, authenticated booklet "Organizing a Flying Club." It's free—compliments of the makers of the Great Lakes Trainer. In your letter, tell us of your ideas and what plans you have made; give us the names of your associates, too. We'll be glad to help—and there's no obligation involved.

GREAT LAKES AIRCRAFT CORPORATION CLEVELAND

Another advertisement, containing an illustration of a Great Lakes Sport Trainer in flight, was designed to capitalize the drastic reduction in the price of this plane from \$4,990 to \$3,150, which was announced in February, 1930. This advertisement, which was inserted in all general and business magazines used for the company's advertising, contained the following headline and text:

SAFE FLYING NOW WITHIN REACH OF ALL

New Improved 1930

GREAT LAKES SPORT TRAINER

Was \$4990, now reduced to \$3150

Great Lakes announces a new, improved Sport Trainer at drastically reduced prices. And a new program that makes flying as easy and inexpensive as motoring in a good car!

The Sport Trainer by Great Lakes is universally recognized as a leader in the *quality* class of two-place ships. It is fast; it is handsome; it is remarkably easy to handle. It is powered with the famous American Cirrus motor—specially designed and constructed to meet American conditions. A snug, detachable coupe top makes the Sport Trainer an all year ship; suitable alike for business, sport and dispatch flying. Operating costs compare favorably with those of a medium-priced car. Initial costs are so low that anyone who can afford a good car can afford to buy a Great Lakes Sport Trainer.

Everywhere in the United States, in Canada and in Pan-

America, Great Lakes Operating-Dealers are to be found. Experienced flyers, these competent men are now operating the leading and most reliable flying schools in their communities. They conduct established business concerns. They are ready to sell you a Great Lakes plane, service it at a fair rate, and teach you to fly!

Great Lakes has swept aside the last obstacle to popular flight by placing a quality plane within reach of almost everyone—by making it possible for you, through your Great Lakes dealer, to learn to fly! Get into the air—now—in a ship of your own—in a Great Lakes Sport Trainer! Consult your local Great Lakes dealer, or write us direct.

At many of America's 1,500 widely scattered airports there are men measuring up to Great Lakes dealer standards who will be interested in our special brochure.

GREAT LAKES AIRCRAFT CORPORATION CLEVELAND

Other advertisements appearing in business magazines were similar to those which had appeared in 1929, stressing the business use of the airplane and the advantages of the Sport Trainer for such use.

All inquiries from prospective purchasers were communicated to the dealers for the respective territories; inquiries from prospective dealers were immediately followed up by the company. Also,

in answer to inquiries from prospective purchasers of planes or of flying courses, the company sent a catalogue describing the Sport Trainer, a pamphlet describing the organization of a private flying club, or a booklet, "Learning to Fly," giving such advice on flight training as the reasons for taking flight courses, the necessary qualifications, the selection of the school, and the choice of the plane in which to learn. The proper reply to the inquiry was determined by its character and by the advertisement which originated it. Inquiries which apparently originated from children were answered by a folder describing in understandable terms the thrill of flight, the merits of the Great Lakes plane, and full directions for building a model of the Sport Trainer.

The Great Lakes Aircraft Corporation's direct mail campaign was segregated into three main divisions. One series of letters, describing the advantages of air transportation from the business man's point of view and, in particular, the advantages of the Sport Trainer for the transportation of salesmen, was sent, together with photographs of two Great Lakes planes used in business, to the sales managers of 11,000 companies each possessing resources of \$1,000,000 or over. Another series, with the appeals changed slightly, was sent to a list of operating officials of such public utilities, oil corporations, and other companies as might make use of airplanes in coordinating more closely the widely scattered units of their businesses. The third series, which was mailed to flying school operators and airplane dealers, had two objectives: to induce these operators and dealers to purchase Great Lakes planes for operation and to obtain additional dealer outlets. In order that its dealers might follow up the direct mail advertising, the company notified them of the companies and executives within their territories which it was circularizing.

The first letter of the series mailed to sales managers was as follows:

GREAT LAKES AIRCRAFT CORPORATION

Cleveland, Ohio

February 17, 1930
BY AIR MAIL

(Typed Name of Addressee)

The airplane as a practical and useful sales tool is now coming into its own. The modern ship is swift, safe and economical. For

years to come it will continue to have distinct advertising and publicity value.

Up to the present time one of the chief obstacles to the more widespread use of the airplane has been the high cost of large cabin transport planes (from \$20,000 to \$50,000) which have been employed. In some instances this type of ship with its large passenger capacity, has been desirable and necessary for the use of the Home Office Executive in Charge of Sales. They are however too large and costly for general business needs.

Now the Great Lakes "Business Service" Plane is available at less than \$3,500. This makes it possible to purchase and operate a *fleet* of aircraft at the cost of a *single* large cabin job. The smaller ship is ideally suited to the needs of District Sales Managers and division sales offices. Special field supervisors and all high salaried members of your staff can cover a much greater territory and make more effective calls by plane than when using any other form of transportation.

I will be glad to answer specific questions relative to the economical application of the Great Lakes "Business Service" Plane to your needs. Therefore, if you will outline your operating conditions and ask such questions as may occur to you, I will promptly supply you with the needed information.

Cordially yours,

GREAT LAKES AIRCRAFT CORPORATION

Vice President in Charge of Sales.

. . . AIR MAIL SAVES DAYS . . .

The following copy was included on pages 2 and 3 of the folder containing the letter:

Swiftly, surely this whirling blade annihilates distance
. . . brings your customers and prospects closer,
makes selling easier and cheaper

The secretary hands him a telegraph slip. He tears it open. Reads, "Flying over from Omaha to see you today" . . . and your name signed at the bottom.

He's been busy—this hard-boiled executive you've tried so hard to see. But for an instant he relaxes, the vision of an airplane soaring through the sky . . . on a special mission to see him . . . flashes through his mind. He thrills a little at the

prospect, for we're all something of the boy at heart. Do you think he'll refuse to see you?

A flash of color drops out of the sky, circles the landing field and then comes to rest lightly and gracefully. One of the reporters on the news staff at the airport looks up. "Trim little ship," he remarks. "Wonder who it is?" He saunters out, pencil in pocket, notebook in hand, surveying the graceful lines of the Great Lakes

Business Service Plane with an appreciative eye.

And then he sees your firm name painted on the fuselage. You talk with him. Yes, you've hopped from Omaha—came to see Mr. Jones, of Jones, Jones and Jones. That's news—another commercial house has taken to the air. And in the afternoon papers your hard-boiled Mr. Jones finds a picture of you, and of your ship, and a little story of how you flew hundreds of miles to see him.

Result?—you're in Mr. Jones' office, talking to him, while your competitors are cooling their heels in an ante-room, waiting Mr. Jones' convenience.

But that's not the only advantage of air transportation. It saves the time of your executives in emergencies. It widens the scope of your salesmen's activities. Literally, an airplane on your salesforce multiplies the productive value of each of your salesmen far beyond his payroll

cost. The entire sales department's field is immeasurably enlarged, more territory is covered in a much shorter length of time and that vital selling element, the personal contact, is possible with a much greater degree of frequency.

Why not add a Great Lakes Business Service Plane to your staff?

Good looking. Economical in operation—fifteen miles to a gallon of gas. Absolutely dependable. Sturdy. Faster than wind. A thoroughbred you're proud to own.

And, as one canny owner remarked . . . "We can buy and keep three or four Great Lakes at the cost of a single, large, elaborate cabin ship!"

Your business needs a Great Lakes Service Plane—if you're interested in lowering sales costs and increasing your volume of trade and the prestige of your house!

Operating officials were addressed by the following letter:

GREAT LAKES AIRCRAFT CORPORATION

Cleveland, Ohio

February 17, 1930

BY AIR MAIL

(Typed Name of Addressee)

American business is rapidly taking to the air, for good and sufficient reasons. Swift transportation of executives, field supervisors and inspectors, and of emergency breakdown parts results in increasing the effectiveness of administration, and in large and important savings of time lost by operating units at distant points in the field.

One of the principal obstacles to the more rapid adoption of the airplane as a tool of administrative control has been the cost of the large cabin planes which have in some cases been used.

It is no longer necessary to invest from \$25,000 to \$50,000 in a single ship in order to derive much of the possible benefit of air trans-

portation. While such large planes are desirable and in some cases necessary for Home Office Officials, a light plane especially suited to general business needs is now available. The Great Lakes "Business Service" Plane at less than \$3,500 makes it possible for a Corporation to own and operate a *fleet* of these ships at the same cost as *one* of the larger transport planes. Division Officers and Field Supervisors of scattered properties will welcome the opportunity of speeding up the control of their work which the "Business Service" ship affords.

I will be glad to answer specific questions relative to the economical application of the "Business Service" ship to your needs. Therefore, if you will outline your operating conditions and ask such questions as may occur to you, I will promptly supply you with the needed information.

Cordially yours,

GREAT LAKES AIRCRAFT CORPORATION

Vice President in Charge of Sales

. . . AIR MAIL SAVES DAYS . . .

With this letter was included the following text:

Time and distance need not be a problem any more
 . . . the airplane solves a riddle for
 executives in every line of business

Hardly a business exists that cannot profitably use the airplane, either on the salesforce or as an aid to the executive. Hundreds of nationally known firms recognize this fact, and keep one or more airplanes "on the payroll" at all times.

Oil companies use airplanes for hurry-up visits to the oil fields, and for pipe line inspection in areas where transportation facilities are inadequate. Contractors find the airplane invaluable as a means of transportation to their out-of-town jobs, and for visits to their sources of supply.

Telephone and telegraph companies regularly inspect their properties from the cockpit of a plane . . . trace broken wires

and transport repair crews to isolated regions.

And public utilities companies furnish their executives with air transportation for visits to their widely scattered plants.

In the lumber business the airplane provides the best fire patrol service. Officials use the air to get to out-of-the-way saw mills, and to inspect timber properties.

Aerial prospecting has become an almost indispensable part of the mining industry.

And for payroll transportation the airplane has no equal. Safe, rapid transfer of funds by air is an established fact, widely employed throughout the country.

It's the executive who appreciates the advantages air travel affords. He knows that routine inspection tours he and his staff must make can be shortened by days. He knows that when he wants to get somewhere on time, yet must be back at his desk promptly, he can depend on the airplane for safe, economical transportation.

The executive who employs a Great Lakes Business Service Plane on his staff appreciates, too, the surprising economy of this craft. Its sturdiness and quality make it immune to frequent small repairs.

Fuel consumption is just about the same as that of any good six-cylinder automobile—15 miles to the gallon of gasoline. But the speed, *actual* speed, is three or four times as great, and the distance the plane travels is infinitely shorter.

The Great Lakes Business Service Plane can cruise along indefinitely at 92 miles an hour. Its service ceiling of approximately thirteen thousand feet makes it possible to climb over almost any mountain in the country. Its sturdy construction

insures dependable and constant service, with a minimum of upkeep cost and idle time.

And here's another thing . . . the Great Lakes Business Service Plane is a constant source of legitimate, favorable publicity for its owner. Its sleek beauty arouses the comment of even the most hard-boiled fliers. Everyone comments on the trim lines, the graceful poise of the Great Lakes job.

As an emergency deliverer of spare parts in a plant breakdown; as a means of transporting valuable rush items to customers; as an expander of the field of activities of the entire sales department, the airplane is incomparable.

You show that you're in pace with the modern tempo when you use an airplane. If that plane is a Great Lakes Business Service Plane, it's evidence that you've studied the problem, gone into the features of every popular type of plane, and that you have chosen for your own the ship that gives the most dependable, most economical, longest lived service you can buy!

Airplane dealers received the following letter:

GREAT LAKES AIRCRAFT CORPORATION

Cleveland, Ohio

PERSONAL

(Typed Name of Addressee)

The time has now come when the handling of aircraft can be made profitable. Commercial Aviation is now in the same position that the automobile industry was some twenty years ago. Franchises which were then taken have developed into valuable businesses throughout the United States.

Both to stimulate the purchase of airplanes by thousands of new people and also to put the handling of its aircraft on a permanently profitable basis for its dealer associates, this company has adopted a new and constructive policy for 1930.

1. Its improved 1930 "Sport-Trainer" has been reduced in price from \$4,990 to \$3,150. The result of this reduction will be greater profits to Flying School operators, and largely increased sales to private owners.

2. It has developed a new "Operating-Sales Plan," coupled with a program of Sales Promotion and Dealer-Help comparable to those of leading automobile manufacturers. Dealers operating under this plan in protected territories can now build up profitable businesses and valuable good will.

Knowing of your interest in Commercial Aviation I suggest your careful consideration of our franchise. The establishment of a new Operating-Sales Company or the expansion of an existing one in your city under our plan now presents a *real opportunity*.

I will gladly assist in the formulation of sound plans to this end. Prompt action will, however, be necessary as choice territories are rapidly being granted. It is safe to say that few franchises will be available after the middle of the current flying season. Therefore if interested, wire or write at once.

Cordially yours,

GREAT LAKES AIRCRAFT CORPORATION

Vice-President in Charge of Sales

. . . AIR MAIL SAVES DAYS . . .

On the inside pages of the letter to dealers was included a description of the Great Lakes Aircraft Corporation's dealer help manuals, and the company's statement of policy, which was:

Handling Aircraft

For Profit!

is Now a Business

.

Essentials for building up a permanent and successful Commercial Aviation Business

.

1. Business Experience
2. Sales Ability
3. Knowledge of Aircraft Operations
4. Adequate Working Capital
5. A Salable Line of Planes
6. The Hearty Backing of a Sound Well Financed Manufacturing

Company Whose Policy is:

“Sell Planes by Helping the Dealer Sell”

\$3150

That's the new low price, just announced, for the improved 1930 Great Lakes Sport Trainer—a better ship than formerly sold at \$4,990—a ship, a price, a unique profit-making sales plan that offers dealers the most attractive opportunity in the industry.

THE POLICY
of the
GREAT LAKES AIRCRAFT CORPORATION

It is our belief that for some time to come the commissions from the sale of airplanes alone will not be sufficient for the building up of a permanent and profitable business.

That demonstration and flight training must generally precede a sale by preparing the prospect for the purchase of a plane.

That Operating-Sales Companies should become permanently established and make profits from the start. These profits should come from school and other operating revenues, as well as commissions on the sale of planes.

That contracts for large future commitments for planes are unfair to the dealer.

That the manufacturer has a definite obligation to assist the dealer in every practical way in making a success of his operations as a whole:—both the sale of ships and the revenue-producing field activities that contribute to ship selling.

The Great Lakes Aircraft Corporation therefore commits itself to a policy of maximum help to its dealers throughout the country for the double and related purpose of aiding them in building up a permanent and successful business, and in establishing a lasting and effective outlet for the sale and servicing of Great Lakes Planes.

GREAT LAKES AIRCRAFT CORPORATION

16800 St. Clair Ave., Cleveland, Ohio

The letter sent to flying school operators emphasized the merits of the Great Lakes Sport Trainer as flying school equipment in this manner:

GREAT LAKES AIRCRAFT CORPORATION

Cleveland, Ohio

February 27, 1930

PERSONAL AIR MAIL

(Typed Name of Addressee)

The improved 1930 model Great Lakes Training Plane is now available at a price no school can afford to overlook, \$3,150.

Numerous schools throughout the country using the Great Lakes Trainer in 1929 as standard equipment, all reached the same interesting conclusion:—That a student can be made into a finished pilot in less time by starting him on a maneuverable and faster ship than when starting instruction in a slower plane.

The smart appearance and performance of this plane make it a distinct favorite of the students themselves. It attracts new students to the school. Its style and performance make it a job easily sold to graduates for their personal use.

All things considered it is the most profitable plane for the Training School. Both the first cost, \$3,150 (for the improved 1930 model) and the surprisingly low further cost of operations and maintenance make it a real money-maker.

I am sending you under separate cover copy of booklet "Learning to Fly" which was written in the interest of the Flying Schools of the country, to induce thousands of new people to take instruction. We are securing many requests from serious prospects for this booklet through national advertising. These prospects will be referred to the nearest school which cooperates with us in the use of our ships.

In the hope of adding your school to the growing list of enthusiastic users of the Great Lakes Trainer I am writing you this letter as a means of introduction. I will be very glad to hear from you and to answer any questions that you may have to ask about our ships or the details of a working arrangement.

Cordially yours,

GREAT LAKES AIRCRAFT CORPORATION

Vice President in Charge of Sales.

On the inside pages of this letter were included a number of testimonial letters from flying school operators, and the following text:

A BUSINESS BUILDER FOR YOU

Here is a Training Ship that will make money for your School

A Its smart appearance will attract new students to your school.

B A sturdy ship with rugged landing gear—seldom in the repair shop—busy earning revenue for you.

C An economical ship to operate—you will be surprised at the low cost per training hour, month-in and month-out.

D Its spirited performance results in turning out better flyers in less time than when primary instruction is given in an older type of plane. This has been proven many times.

E Its keen style coupled with its speed and maneuverability make it the ship your graduates will want to buy for their personal use.

■

COMMENTARY: Although up to 1929 a majority of the sales of Great Lakes Sport Trainer planes had been to flying school operators, the future potential market for this type of plane presumably consisted principally of business firms and private individuals. As indicated in the commentary on a previous case,³ there is some doubt whether a dealer organization consisting primarily of flying schools and other fixed-base operators was well adapted to reach these markets. Also the question may be raised as to whether executives of the Great Lakes Aircraft Corporation were justified in their conclusion that flying instruction generally would precede the sale of an airplane. In 1930 it appeared more likely that the future function of flying schools would be principally the training of commercial pilots and of such private owners as did not receive free flying instruction from dealers after they had purchased planes.

In view of these considerations it was a sound policy for the Great Lakes Aircraft Corporation in planning its 1930 advertising appropriation to reduce the expenditures in trade journals and to increase the expenditure for direct mail advertising while continuing to use a substantial proportion of its advertising expenditure for space in general magazines.

Part of the company's direct mail advertising had to be devoted to the answer of inquiries received as a result of general magazine advertising. Here the type of letter and the type of enclosure had to be determined by the character of the inquiry in relation to the type of advertisement and type of medium from which the inquiry originated. Over a period of time a careful analysis of the results obtained from various classes of inquiries could be expected to give the company a sound and economical basis for this type of direct mail advertising.

Direct mail advertising to flying school operators and airplane dealers presented no particular problem. These groups were well defined, and their points of view and particular interests were readily ascertainable. With regard to business firms, the problem was more difficult. Here it appears that the company might well have devoted part of its advertising appropriation to a study of the market before

³ Fleet Aircraft, Inc. (C), p. 265.

undertaking an extensive campaign of direct mail advertising. By means of such a study a number of different classifications of potential business users might have been developed, their requirements ascertained, and specific copy devised to fit each group. In this way there could have been avoided considerable waste circulation such as must inevitably have been present in the company's circularization of 11,000 firms selected merely on the basis of volume of assets.

This case is concerned principally with the selection of advertising mediums. It may not be out of place, however, to suggest certain criticisms of the company's advertising copy. In advertising to potential private users of planes there was possibly too much emphasis on the thrill of flying. The efficacy of this type of appeal was rather limited, and in the long run it was a question whether a substantial volume of sales to private individuals could be effected on this basis. Similarly in some of the copy addressed to business firms, there was too much emphasis on factors of novelty and advertising value. Also, in the copy addressed to flying schools and airplane dealers there was too much attention devoted to the use of the company's product for training and other fixed-base operations and not enough emphasis on the desirability of promoting sales to private individuals as a primary source of income. As the sales manager admitted, a large number of flying schools had been established in 1929 and these required relatively little expansion of equipment during 1930. While it apparently was necessary for the aviation industry to pass through the stage of using flying schools and other fixed-base operators as distributors and dealers, it was not desirable to prolong the duration of this stage; and there was evidence in 1930 that the time was nearly ripe to enter the stage of aggressive selling of airplanes to business firms and private individuals.⁴

June, 1930

M. P. M.

⁴ See cases of Stinson Aircraft Corporation (D), pp. 302-310, and (E), pp. 318-322; and C. Dallas, Incorporated, pp. 294-301.

35. WRIGHT AERONAUTICAL CORPORATION

MANUFACTURER—AIRCRAFT ENGINES

ADVERTISING—*Use of Appropriation Available for Consumer Advertising of Fabricating Part.* A company manufacturing a wide line of aircraft engines, suitable for installation in almost all current types of airplane, sold its products directly to government departments and to manufacturers of airplanes. Some of its customers were affiliated with the company through merger. In its previous advertising, the company had used varying appeals, some being addressed to airplane manufacturers, some to users of airplanes for commercial revenue, and some to individual users or potential users of airplanes. The company considered using an appropriation of \$60,000, available in June, 1930, either for advertising designed to increase the patronage of transportation lines, or for repeating a former campaign stressing the ease of learning to fly. The company decided, however, to hold the expenditure of this appropriation in abeyance.

(1930)

In June, 1930, the sales promotion manager of the Wright Aeronautical Corporation had available an appropriation of \$60,000. Much of this sum, he believed, might advantageously be expended for advertising in magazines of large circulation in an effort to induce the general public to patronize air transport lines, especially in making vacation trips. An alternative plan was to repeat, in magazines of wider circulation than had been previously used, one of the company's former series of advertisements designed to promote public participation in all types of aviation activity.

The Wright Aeronautical Corporation, one of the largest manufacturers of commercial and military aircraft engines in the United States, had been incorporated in 1919 as the successor of the Wright-Martin Aircraft Corporation and the International Motor Truck Corporation. By the end of 1929 the Wright engines in civilian use were estimated as considerably more than 3,000. The company's plant at Paterson, New Jersey, was equipped to meet any probable increase in demand that might take place during the following several years.

During its 1929 advertising campaign the Wright Aeronautical Corporation, like many other airplane engine manufacturers, attempted to promote the sale of engines by appealing to potential and actual users of aircraft rather than to plane manufacturers themselves. Of approximately 60 companies listed early in 1929 as engine manufacturers, not more than 15 were regarded as important in volume of sales; of more than 250 companies listed as aircraft manufacturers, not more than 45 seemed to be of outstanding importance. The merits of the different engines were well-known to plane manufacturers, who were kept informed of technical developments through the close personal relations existing among most of the executives in the industry. No need for advertising engines to plane manufacturers, therefore, had been apparent. By advertising to actual and potential users of airplanes, however, the Wright Aeronautical Corporation had believed that it could increase its sales by increasing the demand for planes equipped with Wright motors and by inducing consumers to specify Wright motors when purchasing planes from a manufacturer who offered a choice of several engines.

The output of the Wright Aeronautical Corporation was sold to the United States and foreign governments and aircraft manufacturers by the executives and by the two salesmen employed by the company. The cost of the engine to the plane manufacturer typically was from one-third to one-half of the cost of the finished airplane. Aircraft for private use and for business use other than by transport companies usually had been sold through a system of wholesale distributors and retail dealers, although early in 1930 there had been indications that many plane manufacturers regarded direct sales to dealers as a more logical policy. A majority of the airplane distributors and dealers were also fixed-base operators, offering taxi, flying school, photography, and other aerial services. Most aircraft used in regular transport operations were sold by the manufacturers directly to users. The replacement market for aircraft engines was small in 1930.

The Wright Aeronautical Corporation was confident that an engine maintained its separate identity and importance in the eyes of nearly all purchasers of planes. Purchasers of airplanes, therefore, were inclined to purchase that plane which, along with good design and adaptability to the particular need, contained the engine they believed to be the best. Apparently recognizing

that the reputation of the engine used by an airplane manufacturer might be the deciding point in the sale of an airplane, a majority of airplane manufacturers offered a choice of airplane engines in their planes. Motors customarily were sold under identifying names such as Whirlwind, Cyclone, Wasp, Hornet, Scarab, Panther, Conqueror, and Challenger. Whether the aircraft engine eventually would lose its individual identity and merge with that of the plane was an important question to which the answer was by no means clear. It was certain, however, that engine dependability would continue to be of major consequence to the purchaser of an airplane.

The Wright Aeronautical Corporation believed that its motors had an enviable record for dependability and were at least the equals of any competing engines. Many of the planes used in the spectacular trans-Atlantic, trans-Pacific, and long-distance flights, including those of Kingford-Smith in the *Southern Cross*, Chamberlin in the *Columbia*, Byrd in the *America*, Lindbergh in the *Spirit of St. Louis*, and Brock and Schlee in the *Pride of Detroit*, had been powered by Wright motors. In addition, Wright engines had held, at some time, five records for refueling endurance flights.

Scarcely less important than the dependability of the engine in the purchase of an airplane were the servicing facilities extended to the user of a particular make of motor. In spite of the relatively rugged construction of the average aircraft engine, frequent inspection and overhaul were necessary in order to assure the highest possible degree of safety in flight. It was important, therefore, that servicing facilities be available, and to meet this need the Wright Aeronautical Corporation had arranged for the servicing of its motors at numerous airports and flying fields.

The principal civilian markets for airplanes, in the company's opinion, were to be found among individuals, who used planes for pleasure or for private transportation; business companies, which used planes for advertising, sales promotion, and the transportation of executives and salesmen; aerial service companies or fixed-base operators, using planes for crop dusting, aerial mapping, photography, flying school, taxi, and sight-seeing services; and transport lines, which used planes for the transportation of passengers, mail, and express over fixed routes on a regular schedule. The types of airplanes and engines in use varied widely, even in any one segment of the market.

The Wright Aeronautical Corporation manufactured a wider line of aircraft engines than did any one of its competitors; its products were designed to meet the requirements of nearly all types of airplanes. In 1930, Wright aircraft engines were offered in five important horsepower classes, with list prices ranging from \$1,600 to \$8,600. The company manufactured motors suitable for planes of the open-cockpit type carrying one, two, three, or four passengers; for open planes used for light taxi service, the transportation of business executives and salesmen, and crop dusting and aerial photography service; and for planes of the cabin type, carrying four, five, or six passengers, and used by companies operating taxi, crop dusting, and aerial photography service and also in light transport service. The company in addition furnished motors of the types used extensively by transport lines and business companies on single and tri-motored cabin planes ranging in carrying capacity from 6 to 20 or more passengers. The sale of Wright motors to the United States Government was an important part of the company's business.

In the early months of 1930, competition from other prominent manufacturers was becoming increasingly keen, especially in the sale of engines suitable for private and business firm use. These classes of use, in the company's opinion, were likely to increase markedly. The company wished, therefore, to concentrate its selling efforts on motors in the lower horsepower classes, which were appropriate for installation in planes filling the needs of private and business users. Executives of the Wright Aeronautical Corporation, however, regarded the cost of learning to fly and of owning a plane as important obstacles to such an increase in use.¹ Fear of accident was looked on as also an obstacle to plane sales, but a less important one. During 1929 and the early months of 1930, several airplane manufacturers had carried on extensive advertising campaigns for their products; an appreciable portion of this advertising had been placed in general or business magazines. According to whether the plane was best suited for pleasure flying, business use, or commercial operations, the advertisements usually were addressed to wealthy individuals, business executives, or commercial operators. In nearly all airplane advertisements, the name of the motor installed in the plane was

¹ For summary of regulations and of flying school programs, see Curtiss-Wright Sales Corporation, pp. 93-95.

mentioned, and in some the motor was featured. In an advertisement for the Ryan Brougham, for instance, the headline and the opening paragraphs were as follows:

RYAN AND WHIRLWIND 9

The last word in power—a perfected installation

A supreme engine installed as only Ryan could do the job—one more reason why so many seasoned flyers and airline operators prefer the Ryan ship.

The 300 horsepower Whirlwind is scientifically engineered into the new model Brougham and, by virtue of correct installation, a great engine becomes a better one.

The general plan of the Wright Aeronautical Corporation's advertising campaign in 1929 had been to build up in the minds of potential and actual users of airplanes an association of Wright engines with the pleasure, practicability, and safety of flying. All potential and actual users of aircraft were regarded as potential users of Wright motors; the Wright Aeronautical Corporation estimated that private individuals were the most numerous group of potential users, however. As a whole this group though perhaps aware of the rapid development of aviation had not yet come to take an active personal interest in flying, nor to relate an airplane specifically to their business or personal affairs.

In order to overcome this lack of personal interest in aviation, the Wright Aeronautical Corporation previously had designed its advertising to describe the pleasure of flying in a plane and the comparative ease with which a person could learn to pilot a plane. If this type of advertising had the desired effect, it would induce individuals to go up in a plane and thus to become interested in learning to be a pilot; later, such individuals would be prospective purchasers of airplanes. Wright engines were mentioned in the advertisements as dependable sources of motive power, but this phase of the advertising was secondary.

A typical advertisement in the series designed to induce the use of airplanes by individuals appeared in *Aero Digest* in November, 1929. It occupied a full page and contained the following headline and text:

“PILOT MY OWN PLANE?
WELL—AND WHY NOT?”

More than 8,000 men and women are licensed to fly. But nearly half a million people buy and read magazines such as this, devoted to the air!

To the 492,000 people who are not yet pilots Wright here and now makes the suggestion that they start!

Planes of today are capable. Wright "Whirlwinds" and Wright "Cyclones" are strong, dependable engines; pilots are skillful; landing fields daily increase in number and are constantly bettered in quality; while ground service equal to the best garages is flourishing at all good airports.

And most important of all, costs are coming down—(and never forget that it has been cost, not danger, that has limited public participation in airplane activities).

So to our nonflying readers of aviation publications, Wright suggests that they join the First Flight Club now—with the firm conviction that a few years hence will see them piloting a plane of their own!

OFF THE GROUND AND GO!

Another advertisement of this series appeared as a full page in *Airway Age*:

HE WHO GOES ALOFT TODAY— WILL GET HIS FRIENDS TO FOLLOW

The public's knowledge of flight is largely secondhand—its interest is all too much "for the other fellow." The speed of flying, the safety of planes, the endurance of good engines has been repeatedly proven. But 110,000,000 Americans are on the ground instead of riding the air.

Some of course will never go up. Thousands will go once and remain anchored to earth thereafter. But still other thousands upon thousands will think with delight of their glorious, practical adventure and repeat and repeat.

Aviation will grow as its "First Flight Club" grows. And the way to spin out the miles . . . to build better motors . . . and more able planes . . . is to bring flying within the reach of all earthbound—to encourage by word, by deed, and by opportunity given, the millions who ought to fly but do not.

For the true day of aviation dawns when the ownership of a plane is a serious and sensible question . . . when a man and his family choose the make and the model best suited to their needs . . . as today they choose an automobile.

Wright seeks to place flying on a practical, business basis. So that all can make their first flight in utter confidence . . . in a knowledge that everything is shipshape and secure . . . from Whirlwind engine to tail skid.

The advertising directed to the second group of users, consisting of such commercial operators as transport lines and taxi, school, and aerial service operators, was designed to give definite

reasons for the purchase of planes powered with Wright motors, rather than to promote aviation in general.

A series of advertisements of this type appeared on the front cover of *Air Transportation* during 1929, and consisted of a series of 10 advertisements, each of which emphasized an important point in the purchase of an airplane engine. The first advertisement was as follows:

Ten Important Factors in an Airplane Engine

Number 1

RELIABILITY

There is no more important requirement in an airplane engine than *reliability*. The basis of satisfactory flying, by private owner or by operator of a fleet, is the reliability of the engine used.

Wright engines have *proved* this reliability to a greater extent than any other aviation engine in the world. The fact that Wright powered planes have set more distance and continuous flight records than all other American engines combined is a striking demonstration that Wright engines are reliable!

Other advertisements expanded upon such factors as low maintenance cost, operating economy, weight per horsepower, range of power, and their relation to Wright engines.

A second method of emphasizing the merit of Wright engines was to announce the results of races and endurance flights, in a fashion similar to that of the advertisement which follows:

FIRST . . . SECOND . . . THIRD!

Contesting for the Edsel Ford Reliability Trophy, an armada of 42 planes, carrying more than 100 people, flew 5,000 miles in 16 days, to prove to thousands of spectators the value of air travel. Wright "Whirlwinds" powered more than half the planes entered in this great event. They did more than this. The first three places went to Wright power planes. So did 7 of the first 10 prizes. Wright treasures every record on its growing list, and this one is significant. For it reflects the all-round value of the "Whirlwinds" . . . translated into terms of operation.

A third method employed by the Wright Aeronautical Corporation in emphasizing the merit of its products was to demonstrate the company's importance in the aviation industry:

RELIABLE POWER PLANTS

Twice each year American plane builders list their products in the Directory Number of *Air Transportation* magazine. In the

issue covering the second half of 1929, a total of 259 airplane models are listed. Of this number the specifications show that 113—more than 42% of all American planes—are powered by Wright engines. Exactly 101 models—or 38%—are powered with Wright “Whirlwinds,” and because this catalogue includes almost every type of American-made ship . . . from trim sport job to mighty “air-Pullman” . . . it accurately pictures Wright’s leading place in the production and sale of reliable aviation power plants.

Because the extent of the servicing facilities which an aircraft engine manufacturer offered was of such importance as a buying motive, the Wright Aeronautical Corporation in its campaign in *Air Transportation* included a few advertisements designed to emphasize the size and quality of the service organization which it had built up:

SERVICE . . . ON THE SPOT!

Long is the arm of Wright’s service division which looks after each “Whirlwind” and “Cyclone” engine. For from the Wright factory at Paterson, New Jersey, it reaches to the far corners of the World. In America and Canada, at strategic flying centers, 62 airport service bases—each a compact model of Wright’s main plant—are maintained within easy flying distance. Here skilled, factory-trained men, working with factory-designed equipment and factory-made parts, keep Wright Power plants running at tip-top performance—which accounts for their admitted leadership in long-lived, reliable, and economical operation.

In carrying out this advertising program, the Wright Aeronautical Corporation had divided its expenditures among the following periodicals:

Air Transportation (weekly), including 20 front cover, 10 back cover, and 9 full page advertisements
Aviation (weekly), back cover every other issue
Airway Age (monthly), full page every other issue
Aero Digest (monthly), full page every issue
Western Flying (monthly), 6 full pages, 6 second cover, every issue
Aeronautics (monthly), 3 full pages, 5 back cover
U. S. Air Services (monthly), full page each issue
Sportsman Pilot (monthly), 7 full pages, 4 third cover
United States Naval Institute Proceedings, full page monthly
Service News, back cover twice monthly

Journal of the American Society of Naval Engineers, 3 full pages annually

American Engineers Monthly Review, ½ page monthly

Air Transportation, Detroit Aircraft Show, Daily Edition, 8 front covers, 3 second covers, 3 back covers

Nominally, most of these publications were aviation trade journals, but in fact many of them were read widely by people who, although interested in aviation, were not actively engaged in it. In general, therefore, the Wright Aeronautical Corporation had used in each publication the appeals regarded as most suitable for the type of reader which the publication reached. For instance, the bulk of the advertising stressing the technical merits of Wright motors had been placed in *Air Transportation*, which was said to appeal strictly to members of the industry; the advertising in other publications had been concerned principally with appeals emphasizing the pleasure and advantages of flying, since their readers consisted largely of the general public.

In addition to its trade journal advertising in 1929, the Wright Aeronautical Corporation had used bulletins and booklets describing engine models; portfolios, photographs, and souvenir ash trays; instruction books; newspaper and other advertising to memorialize important events in the industry; booths at aircraft shows and exhibitions; and the company's monthly house organ, the *Trade-wind*, which was distributed to manufacturers, distributors, and users of aircraft, government officials, and persons outside the industry.

Until June, 1930, the Wright Aeronautical Corporation had continued its advertising program along much the same lines as those of 1929, although the amount of advertising in aviation trade journals had been curtailed in order to make funds available for full page advertisements in *Nation's Business* each month. These advertisements were similar to those which had been used in 1929 to induce individuals to purchase planes or to make use of air transportation in traveling. The pleasure, cleanliness, and the time saving qualities of air travel were emphasized. In addition to this campaign, the company had inaugurated a series of full-page advertisements in *The New Yorker* and *The Sportsman* designed for the same purpose. This campaign consisted of 10 advertisements, the first of which contained the following headline and text:

Drive Out to the Nearest Airport and learn that—

IT'S EASY TO FLY

Today or yesterday, you heard the drone of a plane overhead . . . looked up . . . and said, "I'd like to be up there looking down." . . . *Then, why not do it right now?*

In that plane, and thousands like it, over 50,000 Americans desert older, slower forms of travel, and fly 2,000,000 miles each week. And to help you learn to fly yourself, Wright offers this practical, common-sense plan.

First, drive out to the Airport. With 2,000 licensed ports on Government maps one should be close to your home. And at a large metropolitan landing field, here's what you'll see:

A mile square of land so level and immaculately kept that it resembles a giant billiard table. Long runways radiate fanwise into the wind. Flags mark the boundaries by day, and at night it wears a necklace of bright lights. Other lights flood the field for planes landing after dark. The beacon you see at the corner of the field guides distant night flyers to port. Another probes the sky's "ceiling," or distance from ground to clouds which, with weather reports, is radioed to other ports and to planes flying between.

The biggest building at the corner of the Field is the Station. Like the railroad terminal, it is equipped with waiting rooms, rest rooms, restaurant, and separate concourses for incoming and outgoing passengers.

In another sector of the Station, air mail, express, and freight are handled. Here you'll see sturdy, winged trucks of the air roll up, unload, and roar away, their "Cyclone" or "Whirlwind" motors still singing sweetly after long hours of hard, dependable flight.

Grouped near the Station are a number of large hangars . . . a great garage for a fleet of trucks and tractors to keep the field smooth . . . a gasoline and oil station . . . a service station and repair shop. Thousands of "Whirlwinds," "Cyclones," and Wright-Gipsies are kept running smoothly, swiftly, and safely by 100 Wright Field Service Plants which dot the map of America.

Next, you'll notice a building looking out over the whole field. This is the Operations headquarters from which field traffic is guided with the precision of the street traffic system in town.

Watch the system at work. Incoming planes have the right of way. A plane receives its signal, advances to take off. From the Field Bureau weather reports are hurried to its pilot. An officer signals . . . the ship streaks down the runway . . . zooms and off . . . with miles of swift, safe, Wright-power flying ahead . . . and another port far away!

Spend a day seeing all this. Flying will become real to you, a part of the actual scheme of living and moving upon the earth's face. In learning to fly, that's the first step. Take it now, and you'll be on

your way to piloting a plane of your own, which Wright wants to help you to do.

The second step—Talking with Pilots of the Planes—Wright will describe in the next advertisement of this series telling you that *It's Easy to Fly!*

WRIGHT AERONAUTICAL CORPORATION

A Division of Curtiss-Wright Corporation

In this advertisement, as in others of the series, the text was illustrated by five or six small pen and ink drawings placed at appropriate intervals in the three columns of text. Beneath each advertisement was an offer to supply on request, free of charge, a 12 × 9 inch booklet containing reprints of the entire set of 10 advertisements.

The second advertisement of the series was as follows:

2. . . . Talk with Pilots of the Planes and learn that—
IT'S EASY TO FLY

Get on the ground of an Airport, and chat with the men who fly. They're as interested in you as you are in them, and they're anxious to show you that it's easy to fly, when you sensibly set out to learn.

First, you'll learn that heroes and heroics have gone from the skies . . . that planes are designed for you as for thousands like you, who fly them every day!

Here's the pilot of the big tri-Wright-motored transport which you see in front of Wright's great Service Plant, engines idling. He's just landed from a 300-mile run on schedule, and has time for a chat.

How many ships like that one fly today? Why, there are hundreds of passenger, mail, and express transports flying every day. The Department of Commerce, which guards all flying, gives their mileage as more than 100,000 every 24 hours.

The transport service is an easy introduction to flying, you're told. It flies over established airways, just as trains ride over railways, on minute-to-minute schedules. For instance, \$33 takes you swiftly from New York to Montreal in 4 hours, \$18 from Detroit to Chicago in 3½ hours and \$21 from San Francisco to Los Angeles in 3 hours!

How can smaller planes serve you? Have a talk with the Aerial Service man, standing between that fast Wright-Gipsy job and the one with a big "Whirlwind" in its nose. His is the taxi business of the air. If you want to get quickly from place to place; if you're an engineer or real estate man seeking a map showing every detail of town, city, or section of land; if you're a manufacturer in need of quick delivery of material; or a salesman with time riding you hard—this man is ready to serve you.

Where are the planes civilians fly? Of all the planes on the field, a business man who flies tells you, over half are owned and piloted by people like yourself. That great air yacht, powered by a giant "Cyclone" belongs to an automobile man who takes friends on pleasure or business trips every week. A debutante pilots the sleek Wright Gipsy sport job taking off, and a Wall Street man commutes every day in that cabin job.

How safe is it for you to fly? That, you learn, depends on how, in what, and with whom you fly. First, pick a pilot who shows a Government License to carry passengers aloft. To win this, he must prove to expert Federal examiners that he has had ample training and experience to fly safely, surely, and well.

And pick a plane that is inspected, approved, and licensed by the government, with engines of such proved reliability as Wright "Whirlwinds," "Cyclones," and Wright-Gipsies. Then you'll find that flying cross country in a modern plane is as simple as taking a Sunday drive.

Talk to all the flyers you can, whenever you can. They're enthusiastic fellows, all of them anxious to make you understand. Mystery will disappear in the light of simple knowledge.

.

Then study the ships and their control, which the next Wright advertisement will help you to do, in this series showing you that *it's really easy to fly!*

WRIGHT AERONAUTICAL CORPORATION

A Division of Curtiss-Wright Corporation

The succeeding seven advertisements each treated a separate topic in the process of becoming interested in aviation, learning to fly, and purchasing a plane for private use. The headlines of the various advertisements were as follows:

3. . . . Study the Ships and Their Control and learn that—
IT'S EASY TO FLY
4. . . . Pick your Plane and go Aloft to learn that—
IT'S EASY TO FLY
5. . . . Study the Plane's Power Plant and learn that—
IT'S EASY TO FLY
6. . . . Pick your Pilot or Ground School and learn that—
IT'S EASY TO FLY
7. . . . Go to a Flying School and learn that—
IT'S EASY TO FLY
8. . . . Now Solo for the First Time and learn that—
IT'S EASY TO FLY
9. . . . Buy the Ship that fits your needs knowing that—
IT'S EASY TO FLY

The final advertisement summarized the preceding ones, and read as follows:

10. . . . Follow this common-sense plan and learn that—
IT'S EASY TO FLY

Bound for Europe 344,023 people crossed the Atlantic from American ports in 1928. But more than 3,000,000 boarded airplanes last year and flew a hundred million miles over the United States! A pleasure awaiting *you*. To see for yourself why it's easy to fly—follow this practical plan:

(1) *Drive out to the nearest Airport.* You'll find an immense, immaculate Field . . . each major detail under Government supervision . . . equipped with every device for regulating sky traffic. Station, hangars, Wright Service headquarters . . . as well as conveniences for passengers, pilots and plane-owners . . . are as modern as any rail or bus terminal.

(2) *Talk with pilots of the planes.* They'll tell you that American air transports *fly over 100,000 swift, sure miles every 24 hours* . . . that thousands of people like yourself pilot their own planes . . . and you'll learn that flying in a licensed ship, with a licensed pilot, behind a Wright "Whirlwind," "Cyclone" or Wright Gipsy engine is as simple as taking a Sunday drive.

(3) *Study the ships and their controls.* You'll note the simplicity of control which makes it easy to fly. You'll mark the quality in Wright's five great motors, specially engineered for every make of plane.

(4) *Pick your plane and go aloft.* Be sure it's a licensed ship, flown by a licensed pilot and powered by a Wright engine. Then get in and take off . . . the panorama is like motoring up a mountain road . . . only it's so smooth and comfortable, that you feel no motion at all. Then you *know* that *it's easy to fly!*

(5) *Study the ship's power plant.* You'll understand why those who make aviation history choose Wright engines. You'll see that a Wright "Whirlwind" is actually as simple to control as your car's engine. It has a self-starter . . . accelerates at a throttle touch . . . stops with an ignition switch . . . yet has no gears to confuse you.

(6) *Enroll in a licensed School* . . . as 30,000 have in the last year . . . or put yourself in the hands of a capable personal instructor, and you'll quickly grasp the principles of flight. You'll also learn construction and control as you study each part of the ship.

(7) *Get in a dual training ship* . . . and put your learning to work. A few hours of dual instruction at the hands of a pilot picked not only for his experience aloft but for his ability to teach . . . and soon you'll take command. Confidence comes to you. You learn that flying is easier in many ways than driving a car.

(8) *Solo the ship for the first time.* You send the "Whirlwind" singing . . . down the runway . . . up and off the ground . . . for the most inspiring hour of your life. You find that dual instruction

has made every move of the controls almost automatic . . . you feel like part of the ship. High up and alone, you speed faster than the wind. You glide down . . . touch the field . . . come to a stop. You've learned to fly!

(9) *Then buy the ship that suits you.* Go to the showrooms in town or at any large Airport. Here you'll find a score or more popular planes which parallel the cost of quality automobiles. You'll see a sleek little sport job with a Wright-Gipsy in its nose. You'll spot a larger open job powered with a "Whirlwind," which serves as the touring car of the sky. You'll find cabin jobs, sturdily built, luxuriously appointed. A great air yacht, for eight or ten passengers . . . or a seaplane . . . or an amphibian . . . may take your fancy. Their prices are within the range of automobiles and boats. You can buy them "on time." Powered by Wright . . . you'll find them *all* easy to fly.

WRIGHT AERONAUTICAL CORPORATION

A Division of Curtiss-Wright Corporation

Executives of the Wright Aeronautical Corporation stated that they knew of no method whereby the effectiveness of the various appeals and campaigns could be tested accurately. Although the company frequently received comments on its advertising from others engaged in the industry, such evidence on the whole was thought to be inaccurate and misleading. The nearest approach to an actual test of a campaign which the company had devised was that offering to readers of the 1930 campaign in *The New Yorker* and *The Sportsman* a free booklet containing reprints of the series. The response to this offer had made it necessary for the company to hire an extra full-time clerk to answer requests for the booklet.

In June, 1930, the sales promotion manager of the Wright Aeronautical Corporation thought that the company might gain an appreciable amount of goodwill among airplane manufacturers if it scheduled in general magazines an advertising campaign designed to promote public participation in all phases of aviation; on the other hand, a similar campaign planned to promote specifically the use of regular air lines might be expected to result in an equal amount of goodwill, and the sales promotion manager believed that the results would be more immediate. Such a campaign would emphasize the size of the system of air lines in the United States, their moderate rate schedules, and the cleanliness and speed of air travel. Being uncertain, however, of the net

value of either plan to the company, the sales promotion manager decided to hold in abeyance the expenditure of the available appropriation.

COMMENTARY: By June of 1930 it was clear that the market for airplanes had been much overestimated during the era of optimistic expansion which took place in 1927, 1928, and the first part of 1929. At the time of the case, furthermore, a year of deepening business depression had accentuated the difficulties which the aviation industry found in attempting to market its output profitably.

The questions before the company dealt with consumer advertising, and not with trade advertising to the aviation industry.

Several methods of advertising to consumers were involved. One was to stress aviation in general; to attempt creation of new demand for the products of the industry. In its earlier campaign on the theme "It's Easy to Fly" the Wright Aeronautical Corporation had made such an attempt. Although in that campaign Wright motors were mentioned, the chief emphasis was directed at educating the public to the belief that flying was no longer an unusually difficult art. Because of its inability to trace direct results from this campaign, the company had no means of knowing whether or not the attempt at public education through advertising was premature. The same uncertainty was present as to the feasibility of undertaking through advertising to induce greater patronage of air transport lines.

A second method of consumer advertising available to the Wright Aeronautical Corporation was to stress specifically the desirability of buying or patronizing Wright-powered airplanes. The purpose of such an approach would have been to arouse consumer demand for Wright motors, rather than to divert demand from other types of transportation vehicles to airplanes.

A third possibility, having the merit of aiming at creation of primary demand for aviation rather than selective demand for Wright motors, was to advocate and contribute to a cooperative campaign underwritten by the industry as a whole.

Whatever course the company elected to follow, it was unlikely that demand for airplanes could be much stimulated during the continuance of the business depression.

Even with a renewed upward trend in business activity there would still remain the question whether, and to what extent, "aviation" could be advertised effectively for some years to come. The Wright Aeronautical Corporation, moreover, was not in a strategic position profitably to promote general public acceptance of airplane transportation, nor to promote the sale of airplanes. There was little assurance that the company would benefit directly from single-handed attempts

to promote aviation in general by advertising. For this company to advertise the entire industry, in view of the apparent indifference of the public toward use or purchase of airplanes, would have been an onerous burden.

As regards advertising Wright motors specifically, the company could have expected somewhat greater direct benefits than from advertising aviation in general. Nevertheless, it was doubtful whether these results would fully justify the expense. The company's products were motors, sold as fabricating parts to airplane manufacturers, who stood between the company and the ultimate purchasers of Wright motors. It is true that the Wright Aeronautical Corporation was in a much more favorable position than are many other producers of fabricating parts,² since airplane engines typically retained their separate identities, regardless of the make of plane in which they were mounted, and probably would continue to do so for a substantial time. But until business conditions improved and public acceptance of aviation showed an accelerating rate of natural growth, consumer advertising of Wright motors was scarcely likely to have much effect on the company's sales. The company acted wisely, therefore, in refraining at the time of the case from further general advertising either of the industry or of its own products.

Meanwhile, the Wright Aeronautical Corporation could well have advocated and aided in the carrying out of some program of market research devised to determine as accurately as possible whether the market was capable of substantial expansion and, if so, how this best could be accomplished. In such a research it should have been planned to study at first hand a sufficient number of potential users to provide an adequate basis for determining the outstanding resistances to be overcome and the points of interest most feasible to stimulate by advertising. First-hand study, in this connection, means literal contact with the potential market; abstract or cloistered reasoning would not suffice. If the industry seriously contemplated undertaking to increase the use of airplanes, it needed to arrange for trained observers to invite potential users to take airplane rides; to arrange for each prospect to fly, not once, but probably several times; to discuss with him his reactions to his flights. In this way it would be possible to gain a valid knowledge of the attitude of the non-flyer and the "first-flight"; this knowledge would embrace the reasons for and the extent of actual refusal to fly; the non-user's initial and subsequent reactions to flight,

² For cases on consumer advertising by such manufacturers, see Barbour Welting Company, 2 H.B.R. 176; Manly Elastic Company, 6 H.B.R. 433; Hartley Company, 6 H.B.R. 465; Tiber Body Company (B), 6 H.B.R. 473; Chase Companies, Incorporated, 7 H.B.R. 573.

as well as the reactions of his friends and family as expressed between flights; and his final opinion of the desirability of flight.

Even without more adequate market data, it could safely be concluded, however, that widespread use of airplanes would not be achieved in any event unless they were accepted as a normal and matter-of-fact means of transportation. The possibility of flight was well known to the general public; what was urgently needed, if use of airplanes was to spread widely, was some method of converting the passive bystander who looked upon the airplane as an excellent mode of transportation for "the other fellow" into an active patron of the airplane; it was necessary, in other words, to lead the non-user of airplanes out of the habit of thinking of himself as one of the great mass of outsiders, sharply cut off by his mental attitude from users, and to lead him to regard himself as one of those to whom flying is a matter of direct personal interest.

Adequate diagnosis of this problem was necessary before a sound decision on the Wright Aeronautical Corporation's advertising policy could be reached. If such a diagnosis indicated that it was in fact possible to change public habits of travel and sport by paid advertising, a cooperative campaign underwritten by the industry as a whole might perhaps have been more appropriate than for the Wright Aeronautical Corporation alone to undertake the task.

The fact that despite the widespread attention and publicity that aviation had received, there was still a general unwillingness on the part of the public to buy and use airplanes, indicated that the airplane was not yet a commonly accepted means of transportation.

For the following discussion of the reasons for this attitude, the writer is indebted to Mr. Robert E. Lees, who when Sales Manager of the Waco Aircraft Company, kindly authorized the publication of his analysis in this commentary. Mr. Lees' opinions follow:

"A discussion of this subject 'The Airplane of Today and Private Ownership' naturally involves not only a discussion of the structure of that airplane, but of equal importance, a discussion of public opinion on that airplane and on aviation in general. The latter part of the subject is one which has interested me chiefly through experience gained in the sale of a fairly large number of airplanes to individual owners and through contact with these owners and prospective buyers.

"Although the structure of the airplane is, of course, of great importance, I believe that just at the present time, this matter of public opinion is one which should concern us very vitally for we, in the industry, are naturally responsible for it. Much of the factory building and promotion in this aviation industry of last year was done with the expectation that the general public would take to flying very rapidly,

and that many airplanes would be sold to individual owners for the same reasons that they now buy automobiles and motor boats—for business and for pleasure. It is true that there are people in this industry who believe that the airplane is still too hazardous a vehicle to place in the hands of the general public, but it has been our experience that the public is beginning to take up flying, that the number of airplanes bought for private use is really very encouraging, in view of the many handicaps which have been put in the way of such ownership.

“It seems to have been the custom to begin almost any discussion of the early days of aviation with the statement that the war was responsible for much of the rapid development of aviation, but I am willing to be branded a heretic in blaming that wartime activity for much of the difficulties we are now going through, and for much of the wrong impression which the public has regarding the mysterious art of flying, and I hope that I may be pardoned for going back too far into history to analyze this most important item of our present problem—public opinion.

“Why blame it on the war? Well, first, we placed into service a very large quantity of airplanes which were the best to be had at that time, but if the industry had just been growing naturally, only a slight percentage of that quantity would have seen service, for that type of airplane had not yet become developed sufficiently to warrant its use from an economical standpoint in such quantities. We, likewise, during the war forced a large number of pilots to fly these airplanes, and thus acquainted this large number of pilots with the difficulty of flying in that state of the development of the art. Our present public opinion toward flying is still largely influenced by the effects of acquainting so many pilots with that wartime equipment.

“Consider now the manner in which those wartime pilots were developed. There were opportunities to train but a small fraction of the men who wanted to become pilots, hence the Army and Navy naturally could select 100% physically perfect specimens, and then make further drastic eliminations of those who did not immediately prove capable in the training. They, you will remember, were reminded frequently of the terrific cost of this training, and it was only natural for these pilots to assume that the flying of an airplane was somewhat of a heroic feat, which was true at that time, but not now. Then came the hazardous military flying which was duly reported to the public through the press, was very spectacular, very dramatic and obviously, very dangerous. Added to this truth, we had the fiction written about the thrills and hazards of wartime flying, and added to this, we have these men still with us trained and experienced in the hazardous military flying of the war, and who naturally find it difficult

to think that the ordinary man in the street can quickly learn to fly with any degree of safety. Then after the war came the problem of the disposal of wartime equipment. Many of the Army and Navy pilots bought this equipment cheaply, and either set up flying fields or became itinerant fliers—barnstormers.

“How did they make a living? In order to attract the public to their fields, they proceeded to thrill that public with stunt flying and all manner of hazardous adventures. After getting the public to the field, they sold passenger rides for as much money as possible, and in some cases, gave instruction in flying. In order to collect a reasonable fee from the students, who were somewhat scarce, it became necessary to show the prospective students that flying was a complicated art, in order to justify the high rate charged for this service, but the high rate was largely due to the high overhead and scarcity of students. The very nature of this post-war flier’s existence impressed the public with three things: first, that flying was dangerous; second, that flying was difficult; and third, that it obviously was expensive. The very nature of this barnstorming pilot’s existence depended on his being a heroic figure and a dare-devil.

“Then we come to the outstanding flights; trans-continental, trans-Atlantic, very spectacular and really heroic performances, but the glamour which surrounded the successful flights and the natural hero worship of the successful pilots had its effect in helping the public to believe that all flying was somewhat heroic.

“I certainly do not criticize the wartime pilot, the post-war barnstorming pilot, and others who followed. I am merely analyzing the effect of their activities on today’s public opinion. They could not have done otherwise, but if you will go out and ask say 100 people on the street about flying, you will find that your replies are very largely influenced by the wrong impression of flying, which is due to the original bad influence of our wartime activity.

“Of course, the condition in the industry has changed to a very large extent, but we still have this wartime influence in the thinking of the people within the industry, and out of it, and it is an influence which has caused the industry, itself, to give the public a wrong impression of flying. In fact, when you consider all of these things, we cannot help being very favorably surprised at the way in which the public is taking up flying, but let us consider some more of our difficulties trying to get the public to fly.

“The aviation industry is divided within itself. We have those people whose business is to sell airplanes and those people whose business is to sell courses of flying instruction. In selling airplanes, one naturally thinks in terms of how easy the airplane is to operate, but in

selling courses of instruction, one naturally has to prove to the customer how much he is getting for his money, and when that fee for instruction gets into pretty large figures, the only consequence is to prove to the customer that he must buy a lot of instruction in many subjects all of which proves to him how difficult flying really is.

"This peaceful conflict is going on throughout the industry. We are just now beginning to have sales agencies which can depend solely for their profits on airplane sales. Up to this point, they have had to make their profits out of a variety of activities, including passenger rides, taxi service, student instruction and airplane sales. We have agencies, who, for instance, employ two salesmen, one sells flying instruction, and when you boil it down, he sells his customers the idea that flying is difficult, hence it is necessary to buy much instruction, and the other salesman sells airplanes, and like any automobile salesman proves to his buyers that after all, flying is not so hard. Of course, I am exaggerating this merely to bring out the point, for in most cases, our sales agencies rebate the cost of instruction to anyone buying an airplane after taking their instruction, but nevertheless, the very fact that there is a substantial fee charged for instruction goes to emphasize the difficulties involved in learning to fly.

"Now let us consider some of the other difficulties involved in the private ownership of an airplane. The present state regulations are largely based on the federal regulations and these in turn were a result of the aviation industry's going to Washington and requesting the Department of Commerce to supervise and regulate the industry, for it was feared that without some federal regulation, unsafe airplanes might be built and sold, and the industry would eventually suffer thereby. The Department of Commerce has done a wonderful piece of work in this regulation, but it must be pointed out that the men of the industry who first went to Washington to assist the Department in framing the regulations were engineers, chiefly concerned with the structure of the airplanes. The result, therefore, is that our present regulations are built up from the engineering point of view. It is characteristic of the engineering mind to think logically and to expect that human nature could be governed by regulations as logically as structures are governed by laws of construction.

"So we now have a fairly complicated set of regulations in addition to our wartime ideas on the training of people to fly.

"For instance, we now require that a man learning to fly under these regulations go to a designated physician and be given a thorough physical examination. These physicians, in many cases, have the general public's wartime view of flying, and feel called upon to be so zealous in their work that in many cases, they do much to discourage

the prospective student's ambition to fly, for the student comes to feel that if he is forced to go through all of these physical tests that certainly flying must require so much of him as to perhaps be too difficult and dangerous.

"In this, I am speaking, of course, of the private owner who wants to learn to fly for the sport of it and for his own pleasure. It goes without saying that the training of professional pilots cannot be done too thoroughly. The government regulations are very moderate, indeed, on the requirements for transport pilots' licenses. The man who flies passengers for hire, certainly should be competent to handle that job. He should receive as thorough training as the man at the throttle of a passenger train, and it can be now seen that the larger transport lines are selecting and training pilots with the same care as shown by the railroads in their selection of locomotive engineers.

"But we, who are selling airplanes to private owners, largely feel that the man who wants to fly his own airplane for the sport and convenience of flying, just as he drives his own automobile and motor boat, should not be hampered and restricted by too many regulations. In the state of Ohio, for instance, a man can get a license to drive his high speed automobile on the roads without passing any physical examination whatsoever. He can, likewise, run his high-powered motor boat without going through any formalities. With both of these things, he can damage himself and his neighbors if he is careless or incompetent. Certainly drivers' licenses with automobiles have eliminated some of the people who should not drive cars, but the question arises, are we not being too rigid in our regulation of the private owner of aircraft? This particularly when we consider the many other pursuits a man can follow without being regulated.

"We not only let people drive automobiles and motor boats without much restriction, but we let them do other dangerous things without much regulation. We let them drive motorcycles, for instance. Even some farm machinery is extremely dangerous. We let thousands of people drown themselves every year learning to swim, and we do so many other hazardous things that I sometimes wonder why we single out flying for so much control. Then again as a result of the war, we got into the habit of ranking pilots by the number of solo hours they had flown. Some people learn quickly, and others slowly, and the number of hours is certainly not the only thing to be considered.

"But in spite of all this, the very interesting part of the whole subject is that the private ownership of airplanes is increasing very rapidly . . .

"There are so many obviously good business reasons for using airplanes that it is needless to dwell on them at this time. We believe

that more flying would be done by the general public if the industry placed more emphasis on the pleasure and comfort of flying, rather than on mere speed. We are not all so terribly busy that it is essential that we save two or three days in getting to Los Angeles, but we all appreciate the comfort and cleanliness of getting there in an airplane, and we all will do much to avoid the long weary days riding on the train to say nothing of the dust and dirt.

"Now the large (40) percentage of private ownership among our total list of registrations is extremely encouraging, for that percentage of ownership has grown steadily in the last six years, and we are very confident that it will continue to grow, and it will grow faster if we tear down the mental hazards and the wrong impressions of flying created by the war and the post-war activities. We have found the average opinion of the individual owner is that his airplane can be operated at about the same cost as a motor boat or automobile in the same price range. This mention of price range naturally brings up the encouraging thought that prices can be reduced when we get greater quantity production. This involves the development of a greater market. It appears to us that the private owner represents that market. In order to reach him, we, of course, have to build airplanes that are easy to fly, that are not too expensive, and we, furthermore, have to make it easy for him to get his license to fly his own airplane for his own pleasure.

"There is a certain fascination in flying, the pleasure of which cannot be compared with any other sport, and we, in this industry, certainly should encourage that sport by changing our general attitude toward sport flying. This private ownership of airplanes is going to change the shape of our states and the shape of our real estate maps to the same extent as the automobile has done, and as we look back to some of the difficulties overcome in the automobile industry, it can be seen that our problems are not so serious. Our chief problem, I repeat, is ridding the public mind of the wrong ideas about flying and proving to the public that although flying is very delightful, it is not daredevilish and it is not heroic, and that the average man can fly."

August, 1930

C. I. G.

36. WACO AIRCRAFT COMPANY

MANUFACTURER—AIRPLANES

SALES PROMOTION—*Participation in Aircraft Exhibitions.* A company manufacturing three-seated open-cockpit airplanes which it sold, chiefly through distributors and dealers, to fixed-base operators, business firms, and private users, decided to participate in the International Aircraft Exposition to be held at St. Louis in February, 1930. This exposition was planned more as a convention for the industry than as an attraction to the general public; the company anticipated that by attending the exposition it would have an opportunity to further its contacts with other companies in the industry, to strengthen its contacts with distributors and dealers, and to effect a substantial number of sales.

(1930)

In January, 1930, the question was raised as to whether the Waco Aircraft Company should proceed with plans for participation in the aircraft exposition to be held at St. Louis in February.

By 1930 the company had expanded its production facilities, located at Troy, Ohio, to permit an annual output of about 1,000 planes. Approximately 700 Waco airplanes had been sold in 1928 and about 500 in 1929, yielding the company a satisfactory net profit and a sales volume exceeding \$2,000,000 for the two years.

Although the company sold substantial numbers of airplanes for military purposes to the governments of the United States and of several foreign states, its major efforts were given to the production and sale of commercial airplanes. At the end of 1929, the company's line consisted of nine models of 3-place open-cockpit biplanes. No large transport planes were included. The models, with their power plants and retail prices as of that time, were as follows:

WACO "Ninety," less OX 5 Motor,	
less propeller.....	\$ 2,145
Installation charge, customer's motor.....	\$ 30
WACO "150," overhauled Hisso	
"A" motor, wood propeller.....	\$ 3,935

WACO "180," overhauled Hisso	
"E" motor, wood propeller.....	\$ 4,085
WACO "165" Straight-Wing, 5 Cylinder	
Wright "Whirlwind" motor, wood propeller.	\$ 6,370
WACO "220" Straight-Wing, J-5 Wright	
"Whirlwind" motor, wood propeller.....	\$ 7,335
WACO "220" Taper-Wing, J-5 Wright	
"Whirlwind" motor, metal propeller.....	\$ 8,525
WACO "300" Taper-Wing, J-6 Wright	
"Whirlwind" motor, metal propeller.....	\$10,000

Except for orders which it secured from the government and from large fleet operators, the Waco Aircraft Company made no sales directly to airplane users, but relied wholly upon its distributors and dealers. In January, 1930, the company had 39 distributors and nearly 300 dealers.

It had been the experience of the Waco Aircraft Company that its distributors and dealers, even in areas where opportunities for selling airplanes were numerous, typically conducted flying schools or engaged in other airplane operations as their major means of securing income. The sale of airplanes usually was supplementary to these flying operations. The Waco Aircraft Company was convinced, although it did not know the relative costs and profitableness of the different types of activity, such as plane rentals, plane sales, and flying school operations, that in most instances its sales outlets could not secure a profit solely from the sale of Waco airplanes. It consequently was the company's policy to permit its distributors and dealers to sell other makes of aircraft, provided that no directly competing lines were carried. Most of its outlets did sell other than Waco planes, but even among those firms there were few which relied upon plane sales as their sole or major source of income.

The Waco Aircraft Company advertised in several magazines devoted to aviation, but it had not advertised in more general periodicals.

The company had adopted the policy of participating in aircraft shows and promotional programs such as "air derbies," endurance contests, and safety tests. The company did not participate in all such activities, however, and its specific problem in January, 1930, was that of deciding whether to take part actively in the International Aircraft Exposition to be held at St. Louis, February 15-23, under the auspices of the Aeronautical

Chamber of Commerce. In 1929, the company had exhibited airplanes at the Detroit, Chicago, and Cleveland aircraft shows. At those shows it had made some sales, mainly to distributors and dealers; had had an opportunity to interview prospective applicants for Waco sales franchises; had widened its contacts with others in the aviation industry; had displayed its airplanes to the general public; and, especially in the air races scheduled in connection with the Cleveland exposition, had demonstrated its planes in actual flight. Sale of airplanes, exchange of information, and stimulation of public interest had been the main objectives of the aircraft shows. The consensus of opinion in the industry seemed to be that the shows were of substantial value.

The company found it difficult, however, to evaluate the results of the shows accurately. Some exhibitors did not attempt to make sales at the shows; others did not announce the number of sales made. Attendance at aircraft shows during 1929 had fallen considerably below expectations, and a majority of visitors appeared to the company to be curiosity-seekers.

The Waco Aircraft Company nevertheless foresaw one important advantage to be gained by participation in the St. Louis exposition. That exposition was to be directed mainly to promoting contacts and interchange of information among firms engaged in aircraft activities. The company believed that the exposition, therefore, could be made to serve as a sales convention for its distributors and dealers, many of whom had announced their intention of attending the exposition to examine new models of airplanes, motors, and accessories, to meet factory officials, and to familiarize themselves with the progress of the industry.

The Waco Aircraft Company was particularly desirous of establishing closer relationships with its distributors and dealers in view of the fact that typically their interest was divided between Waco and one or more other makes of airplanes. By attending the exposition, the company's executives might be able to arrange meetings to be attended by its sales representatives. In any event, the exposition would provide a means for establishing personal relations with a minimum expenditure of time. The company had important announcements to make regarding its products, especially a new model of airplane to be offered in the spring of 1930 at a price substantially lower than previously quoted on any Waco planes of similar quality. Such topics as

selling methods, training of salesmen, and trade-in allowances, also could be discussed to advantage. No other means of holding what might be termed a "sales convention" had been considered seriously by the company.

Public attendance at the exposition was likely to be confined to a relatively small number of residents in the vicinity of St. Louis and to wealthy aircraft enthusiasts from elsewhere. Because of weather conditions customary in February, demonstrations and other outdoor activities were expected to be few. It was anticipated, however, that distributors and dealers would be present in large numbers.

The company tentatively had planned to place several airplanes on exhibition and to have practically all its chief administrative and sales executives, six or seven in number, attend the exposition, together with its three salesmen. These salesmen were employed to call on distributors and large fleet operators using planes of the Waco types. If a substantial portion of the company's distributive firms attended the exposition, it was estimated that orders for a total of perhaps 300 Waco planes could be secured during the 8 days of the show. Although these sales might be made later even if the company did not attend the exposition, it was thought to be to the company's advantage to consummate them within a short period and at one place.

On the basis of its former experiences, the Waco Aircraft Company estimated that the total expense of carrying out the suggested program would be about \$5,000. As in the past, this expense would be charged to general sales and advertising.

The company decided to carry out its preliminary plans for attending the St. Louis Aircraft Exposition.

COMMENTARY: The expenses of attendance at the St. Louis Aircraft Exposition were an extremely small proportion of the Waco Aircraft Company's annual sales. Provided that distributors would be present in anything like the numbers expected, the company's decision to participate in the exposition was fully justified, even if no actual sales were made.

Contacts between the company's executives and salesmen and its numerous and widely scattered distributors were highly desirable from the viewpoints of discussing marketing problems and policies, explaining new models, and engendering mutual confidence. Attendance at an exposition such as this one, conducted primarily for the convening of

firms engaged in the industry rather than for attracting outsiders, was an economical method of establishing the desired contacts. The importance of maintaining close contacts with the distributors suggests further that perhaps the company should have established territorial sales offices as a means of regularizing such contacts, especially during the developmental stage of the industry's marketing program.

The making of sales to distributors at the exposition itself was probably the least desirable of the company's objectives. Distributors would be in attendance more for the purpose of securing information than for that of placing orders. Aggressive sales efforts were likely either to earn the distributors' resentment at the time or to result in their overbuying, with consequent ill will later. An excellent foundation, nevertheless, could be laid at the exposition for subsequent calls on established and prospective distributors at their places of business.

Participation in this exposition offered the company several important advantages in addition to that of improving distributor relations: opportunity to examine other makes of aircraft; to exhibit its own models to potential users as well as distributors; to hear and engage in discussions with other manufacturers of the perplexing and unsettled problems facing the industry; and to secure general publicity. Absence from the exposition, on the other hand, probably would have incurred the ill will of those sponsoring it, and would have detracted from the company's prestige in the industry.

As regards the marketing utility of industrial expositions, this case offers an interesting contrast to that of the Moatley Engine Company.¹ The latter company, because it manufactured fabricating parts for sale to a small number of readily identified, large scale buyers, saw little direct marketing advantage in participation in aircraft expositions. The Waco Aircraft Company, on the other hand, having a finished product to sell to large numbers of relatively small, less easily identifiable sales intermediaries for resale to an even larger number of potential users, rightly expected to derive substantial benefits from its participation.

June, 1930

C. I. G.

¹ Fictitious name. See p. 370.

37. MOATLEY ENGINE COMPANY¹

MANUFACTURER—AIRCRAFT ENGINES

SALES PROMOTION—*Participation in Aircraft Exhibitions.* A manufacturer of aircraft engines during 1929 had maintained exhibition booths in the three most important aviation shows, in order to promote purchases of planes equipped with its motors and to create goodwill toward the company within the industry. Believing that the expense of maintaining exhibits was not justified by the effect on prospective purchasers, the company decided to confine its participation in 1930 to those two exhibitions which would be attended most largely by aviation executives and employees.

(1929)

During the year 1929, the Moatley Engine Company had maintained exhibition booths in the three most important aviation shows. In the fall of that year, however, when making advertising and sales promotion plans for 1930, the company considered participating in fewer exhibitions.

In 1929, the products of the Moatley Engine Company, one of the largest manufacturers of aircraft engines in the United States, were well and favorably known throughout the aviation industry. A certain amount of public knowledge of Moatley engines had also been built up by their use in many long-distance flights and in the establishment of endurance records. The company's line of products included engines in nearly every important horsepower class. Sales in 1929 were expected to exceed \$10,000,000.

Civilian users of Moatley engines were the owners of private planes used for pleasure flying; business companies operating planes for the transportation of executives and salesmen; fixed-base operators conducting flying schools and taxi and other services; and transport lines operating on regular schedules over fixed routes. Executives of the Moatley Engine Company believed it probable that, in general, the development of the aviation industry would parallel that of the automobile industry,

¹ Fictitious name.

and that the use of airplanes for pleasure would provide the industry with one of its major markets.

The Moatley Engine Company sold its engines through several salesmen and through company executives. Approximately 80% of its sales of engines were for installation in new planes, and such sales were made direct to the plane manufacturer. The remaining 20% of sales were for the replacement of engines which had worn out in use. During 1929, replacement engines had been sold by plane manufacturers to users; the Moatley Engine Company had decided, however, to make replacement sales in 1930 through its spare parts distributors and service stations.

The aircraft engine was a highly important part of the finished airplane, so important that nearly all transport lines and many smaller operators of aircraft specified the make of motor to be installed in a plane at the time of purchase. For this reason, many plane manufacturers offered a choice of motor installations in their planes.

During 1929, the Moatley Engine Company had carried on trade journal and other forms of advertising in addition to its activities at aircraft shows. Nearly \$30,000 had been expended for full-page space in such aviation trade journals as *Airway Age*, *Air Transportation*, *Aero Digest*, and *Aviation*, which reached people interested in aviation, whether or not actively engaged in it. The general purpose of this advertising had been to emphasize the pleasure of flying and to connect Moatley motors with safe flying in the minds of users and prospective purchasers of airplanes. In addition, more than \$30,000 had been spent for bulletins and booklets describing engine models; nearly \$20,000 for portfolios, photographs, and souvenir ash trays; \$1,000 for instruction books; \$4,000 for newspaper and other advertising to memorialize important events in the industry; and \$15,000 for the company's house organ, which was issued monthly and distributed to a list of 25,000 names, including manufacturers, distributors, and users of aircraft, government officials, and persons outside the industry.

New products, or new models in the company's line, usually were announced through trade journal advertising, catalogues, bulletins, and the company's house organ. The time of announcing new models bore little relation to the dates of aircraft shows, and the latter were not used as announcement mediums primarily.

Aircraft exhibitions occurred frequently and were, in general, patterned after automobile shows, although many of them were held in connection with air races. Some of them were conducted under the auspices of the Aeronautical Chamber of Commerce and others were promoted by such organizations as city chambers of commerce and American Legion chapters.

Typical of such events, although on a larger scale than the average, were the 1929 National Air Races and Aeronautical Exposition, held in Cleveland from August 24 to September 2, under the sanction of the Aeronautical Chamber of Commerce and the direction of the National Air Race Committee. The National Air Races, held at the Cleveland Airport, were concurrent with the Aeronautical Exposition, which was held at the Cleveland Public Auditorium in the downtown district, at a distance of 12 miles from the airport. One dollar was charged for admission to either the races or the exposition. The races consisted of approximately 35 events, and were of all types, including long-distance races or derbies, short-distance races, and races for different classes of planes and engines. In addition, there were stunts and exhibitions of aerial maneuvers.

According to the list of exhibitors, of which the Moatley Engine Company was one, 178 exhibitors at the Cleveland Aeronautical Exposition were divided approximately as follows:²

Plane manufacturers.....	31
Engine manufacturers.....	16
Accessory, supply, and factory equipment manufacturers.....	95
Plane distributors and dealers.....	6
Flying schools.....	2
Transport lines.....	1
Unclassified (including aeronautical periodicals, insurance companies, and others).....	27
Total.....	178

The number of airplane manufacturers actually represented was considerably larger, because distributors and dealers usually exhibited one or more makes of planes.

Although attendance at the air races was highly satisfactory, attendance at the exposition was disappointing and far below what had been expected. Airplane sales also were not up to

² *Airway Age*, September, 1929, p. 1418.

expectations. The general belief in the industry after the event was that the National Air Races were superior to the Aeronautical Exposition as an attraction, and that the average person was more interested in seeing planes in action than on exhibition floors. During the period of the exhibition, planes at the Cleveland Airport could be demonstrated in flight to prospective purchasers only in the early morning hours, because at other times of the day the planes taking part in the National Air Races taxed to the full the airport facilities.

Typical of exhibitions not held in connection with air races was the Second All-American Aircraft Exposition, held under the auspices of the Detroit Board of Commerce at Convention Hall, Detroit, from April 8 to April 12, 1929. Sixty-six plane manufacturers, approximately 10 engine manufacturers, and 140 manufacturers of accessories and supplies maintained exhibits of their products at this exposition. It was said that more than 100,000 admission tickets, at 75 cents a ticket, were sold. A trade journal estimated that total sales made at the exhibit by all classes of exhibitors were close to \$5,500,000. The Moatley Engine Company regarded this estimate as probably very liberal.

The Moatley Engine Company had maintained large booths at both the Cleveland and Detroit shows, in the belief that these were the two most important shows of the year. At these exhibitions each model of the Moatley line of aircraft engines was shown. Literature describing each model and relating the history of the company, the historic flights made by the Moatley engines, and other information designed to induce specification of Moatley motors in airplanes was distributed free of charge. Two or three executives and several other men connected with the company explained the merits and the mechanics of Moatley engines to those who were interested, including private individuals and persons in the aviation industry. Moatley motors were shown also as installations in a number of the planes which were on exhibition, although this display was made entirely at the plane manufacturer's expense.

At none of the exhibitions, however, had a sale of a Moatley engine been made or even attempted. Engines for installation in new planes customarily were sold by company executives and the salesmen at the offices of buyers and as the result of tests and detailed technical analysis, and sales of engines for replacement

purposes could be made only when old engines wore out; as a result, the company believed that engine sales could not be made advantageously during an aircraft show. The experience of the Moatley Engine Company and of other engine manufacturers tended to bear out this conclusion.

The total cost to the company of maintaining exhibition booths in 1929 had been \$32,000, exclusive of any charge for the time of the executives and other members of the personnel who were required to attend the exhibitions. At the Cleveland event, the number of executives, salesmen, and mechanics attending the show, while fluctuating from day to day, had been as high as 27.

The theory under which the Moatley Engine Company and other engine manufacturers had maintained exhibits had been to the effect that the exhibits, by bringing the names and the products of the manufacturers before the general public, would induce purchases, either at that time or in the future, of planes equipped with those companies' motors. The manufacturers also believed that participation in a show created goodwill among other companies in the industry, since it demonstrated that the participant was taking an active part in promoting aviation. It was difficult to judge the actual effect of such a plan of sales promotion, since many exhibitors, such as the Moatley Engine Company, made no effort to sell their products during the exhibition; others refused to give out sales figures; and still others, in their enthusiasm, announced an exaggerated volume of sales. "As wild as the sales estimate at an aircraft show" had become a simile in the industry.

The industry as a whole, nevertheless, apparently believed that aircraft shows were of great value and that the attendance and enthusiasm on the part of the general public indicated that the fundamental purpose of the shows, that of educating the ordinary consumer to the possibility of air transportation, was being fulfilled.

The Moatley Engine Company had attempted to take a critical attitude in gauging the practical effect of aircraft exhibitions. On the basis of its observations the company had concluded that those attending the show could be divided into three classes: persons actually engaged in the aviation industry; reasonably good prospects for the sale of airplanes; and the idle and curious. A large number of aviation executives and employees

attended the important shows, but the Moatley Engine Company had found that, on the whole, such people were too busy with their own exhibits to pay much attention to others. In any event, the company believed that an exhibition was not the best place to describe the merits of a particular product to persons in the industry, since companies buying for installation apparently were chiefly interested in such technical matters as design, performance, and economy in operation. Such buying interests were best satisfied by tests and demonstration flights, which could not easily be arranged at the average exposition. Moreover, the merits of the better known aviation products already were familiar to those in the industry.

The Moatley Engine Company believed that the second class, reasonably good prospects for the purchase of airplanes, was distinctly in the minority. This conclusion was drawn from the appearance of those attending the shows and from the few reliable sales figures that were available.

From the company's observations, the great bulk of those attending the average aircraft exposition were curiosity-seekers, and of these a large number were children. They listened to salesmen's talks, asked questions which evinced a profound ignorance of aviation, and collected a large number of catalogues and booklets; but they purchased no airplanes, nor did their apparent economic status make it seem probable that they would do so in the near future.

In the company's opinion, an aircraft show might be justified if it educated the so-called "curiosity-seekers" in the value of aviation and aroused in them the desire to own a plane as soon as possible. The Moatley Engine Company believed, however, that the shows were not effective vehicles for this purpose. The exhibit of aircraft, engines, and supplies was static, not dynamic. The average visitor might be amazed at the sight, but his major question, "Will this plane fly comfortably and safely?", could not be answered at the exhibit by the most effective method, a demonstration flight. Again, the average show failed to place aviation on a personal basis, in the opinion of executives of the Moatley Engine Company. It represented, in general, an attempt to sell planes to a public each member of which, while recognizing the importance of aviation to others, had failed to see how it could be made of personal use to himself or how it could affect his business.

Because the expense of maintaining exhibits of Moatley engines at aviation shows was not judged to be justified by the effect upon present or future purchasers of airplanes and engines, the Moatley Engine Company decided to confine its participation in 1930 to two exhibitions, those at St. Louis and New York. Both were to be held under the auspices of the Aeronautical Chamber of Commerce, and these exhibitions would be the ones which, in the company's opinion, would be attended most largely by aviation executives and employees.

COMMENTARY: In this case the specific issue was whether, since the company recognized that it could make no actual sales at the exhibition, its participation could be justified by the impressions which its exhibit made on the rest of the exhibitors and on visitors.

The amount spent by the Moatley Engine Company in connection with exhibiting its products at aircraft shows in 1929 was less than one half of one per cent of the company's annual sales. Even had fair portions of the salaries of executives and others been included in this calculation, the ratio of exhibition expenses to total sales would have remained small. There was no way of determining, however, whether the expenditures brought any commensurate return, since the company made no attempt to sell its products at the shows and the results necessarily were indirect and difficult to trace.

If it be assumed that the relatively passive policy which the company pursued was the only valid one open to it, then the company had sound reasons for decreasing the number of shows it would attend in 1930. It is true that as a manufacturer of fabricating parts the company could not actually sell its products to ultimate users, and the exhibitions, with their inevitable cares and distractions for the exhibitors, were obviously enough not the place to attempt to sell to airplane manufacturers.

But the company's policy was not the only one open to it; on the contrary, exhibitions might well have been regarded frankly as laboratories in which the company could study the attitudes and reactions of visitors. It would have been possible to formulate in advance plans for gaining important knowledge of the public point of view toward airplanes, and perhaps even to secure lists of names of persons to be interviewed later and asked to ride in planes provided by the company.³ Such knowledge was needed as a basis for analyzing many of the company's marketing policies; and there was at least a presumption that

³ See also commentary on the case of the Wright Aeronautical Corporation, pp. 357-364.

the crowds visiting aircraft shows could be made to yield valuable information of the kind required.

If it did not intend to make this kind of use of aircraft shows, the company correctly decided to curtail its participation in the shows and, except in the most important shows, to rely for representation upon the showing of airplanes equipped with Moatley motors.

April, 1930

C. I. G.

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